SPECIAL FOCUS: **STORAGE VIRTUALIZATION**

Storage virtualization can increase utilization rates and ease data migrations, but buyers need to consider heterogeneous platform support and other important features before sealing the deal. **Page 14.**

Open source's security sticking point

Lines of communication with outside security experts are not always clear. **Page 17.**

NETWORKWORLD

The leader in network knowledge ■ www.networkworld.com August 25, 2008 ■ Volume 25, Number 33

The 'white space' spectrum debate heats up

Using unlicensed frequencies could spread mobile broadband, but also could cause headaches for broadcasters. **Page 16.**

Making house calls virtually

Using speech recognition and IVR technologies, Boston Medical Center is deploying automated applications to handle patient healthcare. **Page 18.**

RFID shows healthy returns at hospitals

Wireless network technology is being used to track everything from drugs to doctors. **Page 24.**

Cyberwar? What cyberwar?!

Despite reports of major cyberwar between opposing armies in Georgia and Russia, reality says otherwise. **Page 37.**

Dropout stars as one-man IT shop

BY JON BRODKIN

Meet Justin King — the one-man IT shop. At the 5-year-old Human Neuroimaging Laboratory at Baylor College of Medicine in Houston, IT plays a key role in innovative research involving fMRI (functional magnetic resonance imaging) machines.

Researchers and post-doctoral students at HNL spend their time answering such questions as: Why are humans inclined to trust strangers in matters of finance? and How does awareness of a brand (such as Coca-Cola) influence our preferences, and what does that tell us about the human brain? Behind the scenes is an IT infrastructure with storage systems from four vendors, 30 x86 servers and two high-performance computing clusters (See graphic, page 34). Managing it all is just one man

See King, page 34

Algorithm could breathe new life into old routers

BY TIM GREENE

A team of computer scientists last week detailed an algorithm that makes routers operate more efficiently by limiting the number of network route or link-state updates they receive, thus keeping network floods at bay.

The algorithm could be important in large, heterogeneous corporate networks where the oldest, slowest routers make all the others wait while they absorb updates and recalculate their path tables. The Approximate Link State (XL) algorithm suppresses updates so only those routers that are directly affected receive them, says Professor Stephan Savage, who with three other computer scientists at the University of California at San Diego developed the algorithm. He presented a paper about XL at the Association for Computing Machinery's conference of its Special Interest Group on Data Communications.

■ **Researchers are rethinking the data center. See story, page 36.**

Without XL, routers flood the network with route updates, with every router receiving every update. In very large networks, the sheer number of routers and inevitable link-state changes stall out routers episodically as they recalculate.

As a practical matter, however, not all routers need to receive all updates for the network to function well, and limiting the updates actually makes routers work better. "Updates may only be relevant to very localized areas," Savage says.

Using a map analogy to illustrate the point, Savage says that a driver on the East Coast doesn't care if Interstate 5 is flooded out in Portland, Ore. "But meta-

See Algorithm, page 32

20 ways to survive a layoff

NOAH Z. JONES

IT manager and *Network World* columnist Ron Nutter was laid off in February. It took 76 days, 83 job applications and 16 interviews before he landed a new position. Here's what he learned along the way.

NEWSPAPER ■ $5.00

ECONOMY MEETS ECOLOGY.

Energy consumption in datacenters is expected to double in the next five years. Yet many businesses still don't know how much energy their IT is using. So how do you build and manage your IT to reduce energy consumption? With greener software from IBM: a complete range of energy-efficient software to optimize your infrastructure, boost business process efficiency and put practices in place for truly responsible collaboration. With energy at a premium, greener software can help shave millions off your IT and energy budgets. A greener world starts with greener business. Greener business starts with IBM.

SYSTEMS. SOFTWARE. SERVICES. FOR A GREENER WORLD.

Get our green strategy whitepaper at **ibm.com**/green/software

IBM®

Real People. Real Networks. Real Value.

Darden Heritage knows his customers—they depend on him. As the owner of Star Supermarket, Darden operates three grocery stores and six pharmacies. Customer service is his key advantage. It's how he stands out from national chains. He cannot afford network problems to interrupt credit card transactions and insurance claims, or phone calls over his VoIP system.

"The number one reason I would recommend ADTRAN to a small business is reliability. You don't want to invest in equipment that is going to go down."

When Darden upgraded his network, he needed more than low prices; he needed real value. His solutions provider recommended ADTRAN products, and he couldn't be happier.

This is the real world, and this is where ADTRAN stands apart. Whether you are a reseller, a small business owner or an established IT professional, with ADTRAN products you can rest easy. ADTRAN's networking and IP telephony solutions offer business-class reliability and performance at affordable prices. We stand behind our products with industry-leading warranties and renowned support.

Don't you think it's time to Get Real?

New NetVanta® Switches
ADTRAN offers a full line of business-class, high-performance networking solutions designed and built for real value, including our new NetVanta Series of Gigabit, Power over Ethernet, and Fast Ethernet switches.

Get Real. *www.adtran.com/switch*

Smart Solutions for a Connected World. ADTRAN®

8•25•08

NETWORKWORLD

NETWORK INFRASTRUCTURE

ENTERPRISE COMPUTING

APPLICATION SERVICES

SERVICE PROVIDERS

NET.WORKER

COOLTOOLS

■The Dash Express in-car GPS navigation device includes a wide-area wireless connection. **See Cool Tools, page 29.**

TECH UPDATE

NETWORKWORLD.COM

■ **CONTACT** Network World, 492 Old Connecticut Path, Framingham, MA 01701-9002; Phone: (508) 766-5301; E-mail: nwnews@nww.com; ■ **REPRINTS:** (717) 399-1900; ■ **SUBSCRIPTIONS:** Phone (508) 820-8117; E-mail: nwcirc@nww.com; URL: www.subscribenw.com

20 ways to survive a layoff

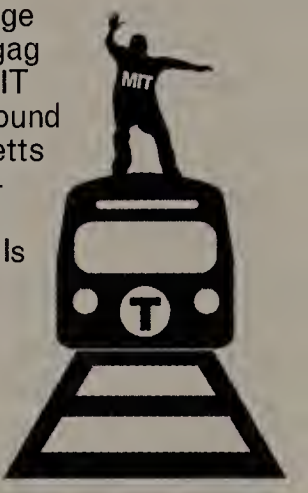
NOAH Z. JONES

IT manager and *Network World* columnist Ron Nutter was laid off in February. It took 76 days, 83 job applications and 16 interviews before he landed a new position. Here's what he learned along the way.

Page 38

GOODBADUGLY

MIT security sleuths free to talk



A U.S. District court judge on Tuesday dissolved a gag order against a trio of MIT students who say they found flaws in the Massachusetts transit authority's ticketing system. They had planned to present details of their findings at the Defcon hacker conference before a judge imposed the gag following a motion by the Massachusetts Bay Transportation Authority, which has acknowledged its system has flaws.

Tightening the purse strings

Research firm Gartner projects that worldwide IT spending growth will slow to 6% in 2009, though the firm says this is fairly robust growth in a generally poor economic environment. Gartner projects that worldwide IT spending will total $3.6 trillion in 2009, 6% more than the $3.4 trillion it projected for 2008. Total worldwide IT spending is expected to grow by 8% this year, down from 10% in 2007.

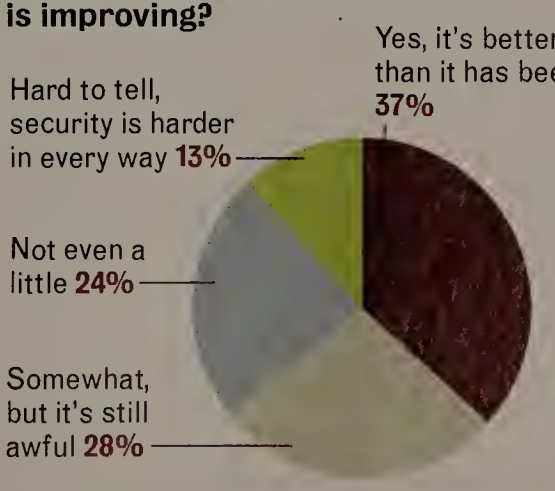
IPv6 not catching on

A study has revealed how slow the rate of adoption is for IPv6. "At its peak, IPv6 represented less than one hundredth of 1 percent of Internet traffic" over the past year," Arbor Networks' Craig Labovitz wrote, adding: "This is somewhat equivalent to the allowed parts of contaminants in drinking water."

POLL

A snapshot of how networkworld.com visitors voted on a key networking issue last week:

Do you think Microsoft security is improving?



Total voters for this poll: **123**

Vote and discuss: www.nwdocfinder.com/6336

Give MIT kids a medal for uncovering subway-pass holes

Re: Judge dissolves gag order against MIT students (www.nwdocfinder.com/6322):

Seriously, the MBTA should be thanking them and rewarding them, instead of suing them. The MBTA should be happy that they now know of the problem and can protect themselves against a real and very serious attack. I guess that ignorance is bliss for the MBTA?

Edgar F. Hilton

Discuss at www.nwdocfinder.com/6323

Training as an investment

Re: Guest worker, Part 2 (www.nwdocfinder.com/6324):

I think one of the core problems here is that too many organizations have this notion that if they invest money to train someone, then they risk losing that employee to another company. So, on the one hand, they want someone highly trained, but on the other, they're not willing to spend the resources to train someone. This creates a lose-lose situation where the end result is that there are not enough highly trained individuals to go around, and the same companies that created this artificial shortage look to bring in H-1Bs or offshore a lot of the work.

The ironic thing is that companies that take a "risk" by investing in their employee training programs show a much lower turnover and higher employee satisfaction.

Kjell Andorsen

Discuss at www.nwdocfinder.com/6324

Get over yourselves, command-line users

Re: Cisco PIX is dead (www.nwdocfinder.com/6325):

Just because you use a CLI does not mean you have more knowledge. I have been designing fiber-optic transport systems for 15 years. The equipment used includes CLIs, as well as advanced GUIs. Ninety-nine percent of the time, I use the GUI. It lets the user configure the device while thinking about what is being done, not remembering obscure commands.

Don't kid yourself. Cisco's encouraging use of the CLI is a marketing tool as much as anything. Techs are being churned out by the tech schools with CCNA as their credentials. If Cisco's CLI is all they know, whose equipment are they going to buy?

Kevin Klimek

Discuss at www.nwdocfinder.com/6325

Comcast was blocking packets

Re: 'Net neutrality — Just the facts, please (www.nwdocfinder.com/6326):

It is a matter of record that Comcast was blocking 24/7. I testified to that fact at the FCC based on my own tests, which were consistent with results observed by [Electronic Frontier Foundation] staffers.

> "The ironic thing is that companies that take a 'risk' by investing in their employee training programs show a much lower turnover and higher employee satisfaction."

Project Glasnost at the Max Planck Institute independently came to the same result using their open source tests and thousands of data points.

Finally, Comcast admitted that their blocking occurred regardless of the time of day or the actual amount of traffic on the network (www.nwdocfinder.com/6327).

Robb Topolski

Discuss at www.nwdocfinder.com/6326

Spoof-proof Internet2

Re: IP spoofing attacks — Mitigation techniques (www.nwdocfinder.com/6328):

How often have you heard of caller ID being spoofed? Very rarely. What needs to be done is to make the originating IP address inaccessible except for trusted gateways. To the end user, the only ID for transport should be the DNS name. The user DNS name would be mapped to a transport ID address that would be inaccessible to end users. Because these IP transport addresses would be temporary, the need for a huge IP-address pool would be obviated. This change would make possible an optional additional security option in that certain destination DNS names could be restricted to a pool of privileged originating DNS users. This would be of tremendous advantage to the military and certain governmental organizations.

Louis A. Carliner

Discuss at www.nwdocfinder.com/6328

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 492 Old Connecticut Path, Framingham, MA 01701-9002. Please include phone number and address for verification.

NETWORKWORLD

CEO: JOHN GALLANT
EDITOR IN CHIEF: JOHN DIX

■ NEWS

ONLINE EXECUTIVE EDITOR, NEWS: BOB BROWN
ONLINE NEWS EDITOR: MICHAEL COONEY
ONLINE NEWS EDITOR: PAUL MCNAMARA
ONLINE ASSOCIATE NEWS EDITOR: ANN BEDNARZ (612) 926-0470

■ NET INFRASTRUCTURE

SENIOR EDITOR: JOHN COX (978) 834-0554
SENIOR EDITOR: TIM GREENE
SENIOR EDITOR: ELLEN MESSMER (941) 792-1061

■ ENTERPRISE COMPUTING

SENIOR EDITOR: JOHN FONTANA (303) 377-9057

■ APPLICATION SERVICES

NATIONAL CORRESPONDENT: CAROLYN DUFFY MARSAN, (317) 566-0845
SENIOR EDITOR: DENISE DUBIE
SENIOR EDITOR: CARA GARRETSON (240) 246-0098
SENIOR WRITER: JON BRODKIN

■ SERVICE PROVIDERS

MANAGING EDITOR: JIM DUFFY (716) 655-0103
STAFF WRITER: BRAD REED

■ NET.WORKER

EDITOR: MICHAEL COONEY

■ COPY DESK/LAYOUT

MANAGING EDITOR: RYAN FRANCIS
COPY CHIEF: TAMMY O'KEEFE
SENIOR COPY EDITOR: JOHN DOOLEY
COPY EDITOR: CAROL ZARROW

■ ART

ART DIRECTOR: BRIAN GAIDRY
ASSOCIATE ART DIRECTOR: STEPHEN SAUER

■ FEATURES

EXECUTIVE FEATURES EDITOR: NEAL WEINBERG

■ CLEAR CHOICE TESTS

EXECUTIVE EDITOR, TESTING: CHRISTINE BURNS, (717) 243-3686

LAB ALLIANCE PARTNERS: JOEL SNYDER, Opus One; JOHN BASS, Centennial Networking Labs; BARRY NANCE, independent consultant; THOMAS POWELL, PINT; Miercom; THOMAS HENDERSON, ExtremeLabs; TRAVIS BERKLEY, University of Kansas; DAVID NEWMAN, Network Test; CHRISTINE PEREY, Perey Research & Consulting; JEFFREY FRITZ, University of California, San Francisco; JAMES GASKIN, Gaskin Computing Services, MANDY ANDRESS, ArcSec; RODNEY THAYER, Canola & Jones

CONTRIBUTING EDITORS: DANIEL BRIERE, MARK GIBBS, JAMES KOBIELUS, MARK MILLER

■ NETWORKWORLD.COM

EXECUTIVE EDITOR, ONLINE: ADAM GAFFIN
SITE EDITOR: JEFF CARUSO, (631) 584-5829
SITE PRODUCER: JONATHAN SUMMEY
ASSISTANT SITE EDITOR: LINDA LEUNG, (510) 647-8960
COMMUNITY EDITOR: JULIE BORT (970) 482-6454
PROGRAM DIRECTOR: KEITH SHAW, (508) 766-5444
MULTIMEDIA EDITOR: JASON MESERVE
ASSOCIATE ONLINE EDITOR: SHERYL HODGE
ONLINE ASSOCIATE ART DIRECTOR: ZACH SULLIVAN

■ NEW DATA CENTER SUPPLEMENTS

EDITOR: BETH SCHULTZ, (773) 283-0213
COPY EDITOR: CAROL ZARROW

EDITORIAL OPERATIONS MANAGER: CHERYL CRIVELLO
OFFICE MANAGER, EDITORIAL: PAT JOSEFEK
MAIN PHONE: (508) 766-5301
E-MAIL: first name_last name@nww.com

With NetApp at the heart of your business, you can

ACCELERATE YOUR THINKING

and bring breakthrough ideas to market faster.

Leave your competition behind. Because with NetApp, you can provision, test, and deploy new applications in days instead of months, keeping your business a step ahead. What's more, you'll love the commitment of our team of experts who share your drive and winning vision. Learn how our storage and data management solutions can help your business go further, faster. Visit netapp.com/breakthrough.

NetApp™
Go further, faster

BLOGOSPHERE

Microsoft is developing a super hard certification test. Randy Muller writes in his All about Microsoft Certifications blog "There is a new beta test running which demonstrates an interesting pattern at Microsoft for exams and exam subjects. The new exam is (or will be when released) 70-660: TS Windows Internals. What this exam tests is the "deep technical skills in the area of Windows Internals. Including troubleshooting operating systems that are not performing as expected or applications that are not working correctly, identifying code defects and developing and debugging applications that run unmanaged code or that are tightly integrated with the operating system, such as Microsoft SQL Server, third party applications, antivirus software, and device drivers."
www.nwdocfinder.com/6332

Getting help in JUNOS. Jeff Doyle writes in his blog, "I discussed in the previous post how candidate configurations, explicit commits, and rollbacks greatly increase the reliability of configuration changes in JUNOS and reduce the risk of configuration mistakes. Heaven knows if there is a mistake to be made, I'm likely to make it. Another nice feature for klutzy typists such as myself is that rather than waiting until you hit return at the end of a configuration statement to check for syntax errors, JUNOS checks syntax word-by-word — that is, every time you enter a word into a line and hit the space bar, it checks the syntax." **www.nwdocfinder.com/6333**

Anti-social engineering. Noah Schiffman writes in his Security Phreak blog, "The Internet has led to the content dilution of many once respected journals and publications, such as my blog to Network World. Actually, it is an online article titled 'How I Stole Someone's Identity', currently featured on Scientific American's website which highlighted this fact. It's watered down material and oversimplified presentations have resulted in its loss of cutting edge credibility. This article, which outlines Herb Thompson's 'experiment' (there's nothing experimental about an everyday occurrence) to 'break into' (logic + luck + end user stupidity < breaking into) someone's bank account, holds little value to readers with a shred of intelligence. What I found most irritating was the text contained in the article's URL, referring to the story as an 'anatomy of a social attack.' Data mining, email account discovery, and automated password resets is not 'social' nor an 'attack.'"
www.nwdocfinder.com/6334

IT VIDEO

INTERVIEWS, THE COOLEST TOOLS AND MORE

IDG NEWS SERVICE:

Balloons: The new tool for hackers

Similar to wardriving, warballooning is a new sport, pioneered by Rick Hill and his team at Defcon.

www.nwdocfinder.com/6337

IDG NEWS SERVICE:

Omega keeping time at the Olympics

This is Omega's 23rd time as official Olympic timekeeper and the technology has come a long way since the first time it was used in 1932.

www.nwdocfinder.com/6338

IDG NEWS SERVICE:

MIT hackers relieved of gag order

The court dissolved the gag order against three MIT students who found a flaw in the MBTA's ticket system.

www.nwdocfinder.com/6339

BEST OF NWW'S
NEWSLETTERS

New twists on Wi-Fi

Small business networking: It's a wireless world, some say, conveniently overlooking the giant balls of cables behind every personal computer and every server, router and printer. But many want to expand the wireless world, so let's look at two companies doing just that. **www.nwdocfinder.com/6329**

Network/systems management: The IT security team at Wayne State University in Detroit wanted to get better visibility into the traffic crossing the urban institution's main and satellite locations. With some 33,000 students and 10,000 faculty, staff and employees using the network, which includes 10,000 internal and 50,000 external hosts, the team turned to network behavior analysis (NBA) software from Q1 Labs. NBA tools monitor and analyze network traffic, looking for abnormalities and patterns that could indicate a zero-day attack, or a server sending too many queries, or one that is trying to connect to the Internet in the middle of the night. The products prove to be another layer of security; in addition to identifying top talkers on the network, NBA technology can help network and security teams detect undocumented vulnerabilities and symptoms of unknown threats before the environment is impacted. **www.nwdocfinder.com/6330**

Network/systems management: The U.S. General Services Administration (GSA) estimates it can save between $750,000 and $50 million annually if a majority of government agencies implement power management software that would enable IT to program computers to automatically shut down during non business hours. Private companies such as Partners HealthCare are reaping the rewards of power management features in software from asset-management vendors such as Altiris. And now the GSA is offering the personal computer power conservation software at an annual license fee of $3 per computer through its SmartBUY program, which is a federal government procurement plan designed to promote "effective enterprise-level software management." The $3 license fee remains in effect through fiscal 2008. Tom Kirelis, acting deputy director of the Office of Infrastructure Optimization, Federal Acquisition Service at GSA, says the potential savings justify the investment in BigFix's Power Management software. He explains the software became part of the SmartBUY program via the Department of the Army, which had a blanket purchase agreement for asset management and asset discovery — two features of BigFix's broader product portfolio. He says the Power Management application is well suited to government agency's infrastructure needs.
www.nwdocfinder.com/6331

UPTIME COMES STANDARD.

intel Xeon inside™ Powerful. Efficient.

IBM System x3550 Express
$2,205

OR $56/MONTH FOR 36 MONTHS[1]

IBM System x3550™ Express. It's designed to stay up and running and help reduce system downtime. In fact, it can even identify a potential problem before it becomes one. And if you ever have to replace a component, you can do that without having to shut down. Just one more way the x3550 Express keeps downtime down.

From the people and Business Partners of IBM.

It's innovation made easy.

RUN YOUR CRITICAL APPLICATIONS WITH CONFIDENCE.

PN: 7978EJU

- Featuring up to two Quad-Core Intel® Xeon® Processors E5430 2.66GHz
- Hot-swap redundant cooling for high availability
- Includes IBM Director and PowerExecutive to help manage power consumption, increase uptime, reduce costs and improve productivity
- 3-year on-site limited warranty[2] on parts and labor

IBM SYSTEM STORAGE™ DS3400 EXPRESS KIT

$13,793

OR $352/MONTH FOR 36 MONTHS[1]

PN: 1726-42U

- All-in-one kit makes it easier to migrate from your DAS network to SAN
- Includes IBM System Storage DS3400 Dual Controller, four IBM Emulex 42C2069 4Gb/s PCI Express HBAs, Brocade SAN 8 Port Fibre Channel switch (16 total ports), twelve 4Gb/s SFPs, and eight 5-meter optical LC cables
- Emulex EZ Pilot™ installation/management software included

IBM TIVOLI® CONTINUOUS DATA PROTECTION FOR FILES

$42 per user

PN: D613ALL

- Save and recovery technology enables file recovery to any point in time
- Continuous Data Protection (CDP) protects your data from the aftermath of a virus attack or user error
- Up to 3 backup/replication areas help protect against corruption, file loss or system loss

COMPLIMENTARY SYSTEMS ADVISOR TOOL

Want to find the right server or storage system for you? Our Systems Advisor Tool can help. Just give the tool a little input, and it will identify products that can help meet your business needs. Get started now at **ibm.com**/systems/uptime

IBM express advantage™

ibm.com/systems/uptime
1 866-872-3902 (mention 6N8AH04A)

1. IBM Global Financing offerings are provided through IBM Credit LLC in the United States and other IBM subsidiaries and divisions worldwide to qualified commercial and government customers. Monthly payments provided are for planning purposes only and may vary based on your credit and other factors. Lease offer provided is based on an FMV lease of 36 monthly payments. Other restrictions may apply. Rates and offerings are subject to change, extension or withdrawal without notice.
2. IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply. For a copy of applicable product warranties, visit ibm.com/servers/support/machine_warranties or write to: Warranty Information, P.O. Box 12195, RTP, NC 27709, Attn: Dept. JDJA/B203. IBM makes no representation or warranty regarding third-party products or services, including those designated as ServerProven® or ClusterProven.® Telephone support may be subject to additional charges. For on-site labor, IBM will attempt to diagnose and resolve the problem remotely before sending a technician. On-site warranty is available only for selected components. Optional same-day service response is available (on select systems) at an additional charge. IBM, the IBM logo, IBM Express Advantage, System x and System Storage are trademarks of International Business Machines Corporation in the United States and/or other countries. For a complete list of IBM Trademarks, see ibm.com/legal/copytrade.shtml. Intel, the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and other countries. All other products may be trademarks or registered trademarks of their respective companies. All prices and savings estimates are based upon IBM's estimated retail selling prices as of 03/24/2008. Prices and actual savings may vary according to configuration. Resellers set their own prices, so reseller prices and actual savings to end users may vary. Products are subject to availability. This document was developed for offerings in the United States. IBM may not offer the products, features, or services discussed in this document in other countries. Prices are subject to change without notice. Starting price may not include a hard drive, operating system or other features. Contact your IBM representative or IBM Business Partner for the most current pricing in your geographic area.

Firefox SSL-certificate debate gets gnarly

Debate is reaching a fever pitch over a new security feature in Firefox 3.0 that throws out a warning page to users when a Web site's SSL certificate is expired or has not been issued by a trusted third party. Mozilla officials say the new feature helps curb electronic eavesdropping or so-called "man in the middle" attacks. Critics say that Firefox 3.0 is putting undue fear and confusion into everyday Web surfers and forcing Web-site operators to do business with specific vendors of SSL certificates or risk the appearance that their Web sites are broken. The certificate issue is cropping up on such major sites as the U.S. Army's, which uses certificates issued by the Department of Defense. In the Army's case, Firefox does not recognize the DOD as an authorized certificate provider and defaults to a Web page showing a traffic-cop icon and proclaiming that the site's certificate can not be trusted. The problem also has surfaced with expired SSL certificates on such sites as Google Checkout and LinkedIn. **www.nwdocfinder.com/6340**

IBM commits $300 million to disaster recovery. IBM is investing $300 million to build 13 new data centers that will help customers worldwide recover from disaster by storing their data remotely in a cloud-based storage model. The data centers, to be built this year, will be in locations including Hong Kong, Tokyo, Paris, London, Beijing, Poland, Italy, New Jersey, Germany, Brazil, India and South Africa. IBM is calling the new facilities Business Resilience service-delivery centers. Data-protection technology gained in IBM's acquisition of online storage provider Arsenal Digital Solutions has been integrated with IBM's rack-mounted storage appliances and will be a part of the new service-delivery centers.
www.nwdocfinder.com/6341

Dell gains, Sun loses in worldwide server market. Dell posted the biggest gains in worldwide server revenue in the second quarter, helping it to nudge Sun out of third place, Gartner said last week. IBM retained the top spot but its revenue growth was slower than Dell's, while HP stayed in second place with hardly any growth, according to Gartner's estimates. Dell's server revenue climbed 15% from the second quarter last year, compared with 11.5% growth for IBM and 2.9% growth for HP. Sun's revenue declined 6.8% while Fujitsu/Fujitsu Siemens' stayed flat. An upswing in x86 server-replacements during the quarter was the biggest driver for the market as a whole, according to Gartner. Sales also were lifted by data-center buildouts and growth in emerging markets. Server revenue overall grew 5.7% from the second quarter last year, to $13.8 billion, which Gartner called a solid performance given the economic woes in the United States and elsewhere.
www.nwdocfinder.com/6342

Palm unwraps the unlocked 3G Treo Pro. Palm took the wraps off a new and unlocked Windows Mobile 3G smart phone, aimed at enterprise users. The Palm Treo Pro incorporates features designed to appeal to IT managers who are opting for Windows Mobile as their mobile platform and who want more control over corporate handhelds. Windows Mobile 6.1 includes Microsoft DirectPush Technology, which creates a direct link with Microsoft Exchange Server 2003 or 2007, as well as hooks to Microsoft System Center Mobile Device Manage (MDM). No U.S. carrier has been announced for the smart phone but because it supports GSM-based 3G cellular standards Universal Mobile Telecommunications System and High Speed Downlink Packet Access, the device can operate on networks from AT&T Wireless and T-Mobile USA. This should enable enterprise customers to negotiate rate plans with carriers, then fit the Treo Pro with an appropriate SIM card. The unlocked version will be available in the United States in the fall. The suggested retail price is $549. **www.nwdocfinder.com/6343**

Microsoft lifts virtualization-licensing restrictions. Microsoft confirmed last week it will eliminate a licensing restriction that prevented customers from moving virtualized applications to a different server more than once every 90 days. The 90-day restriction will be removed on Sept. 1 for the most commonly used Microsoft server applications, including SQL Server 2008 Enterprise edition, Exchange Server 2007 Service Pack 1 Standard and Enterprise editions, Dynamics CRM 4.0 Enterprise and Professional editions, Office SharePoint Server 2007, and Microsoft System Center products. In all, 41 server applications are affected. Microsoft also said it will provide technical support for applications running on several types of hypervisors.
www.nwdocfinder.com/6344

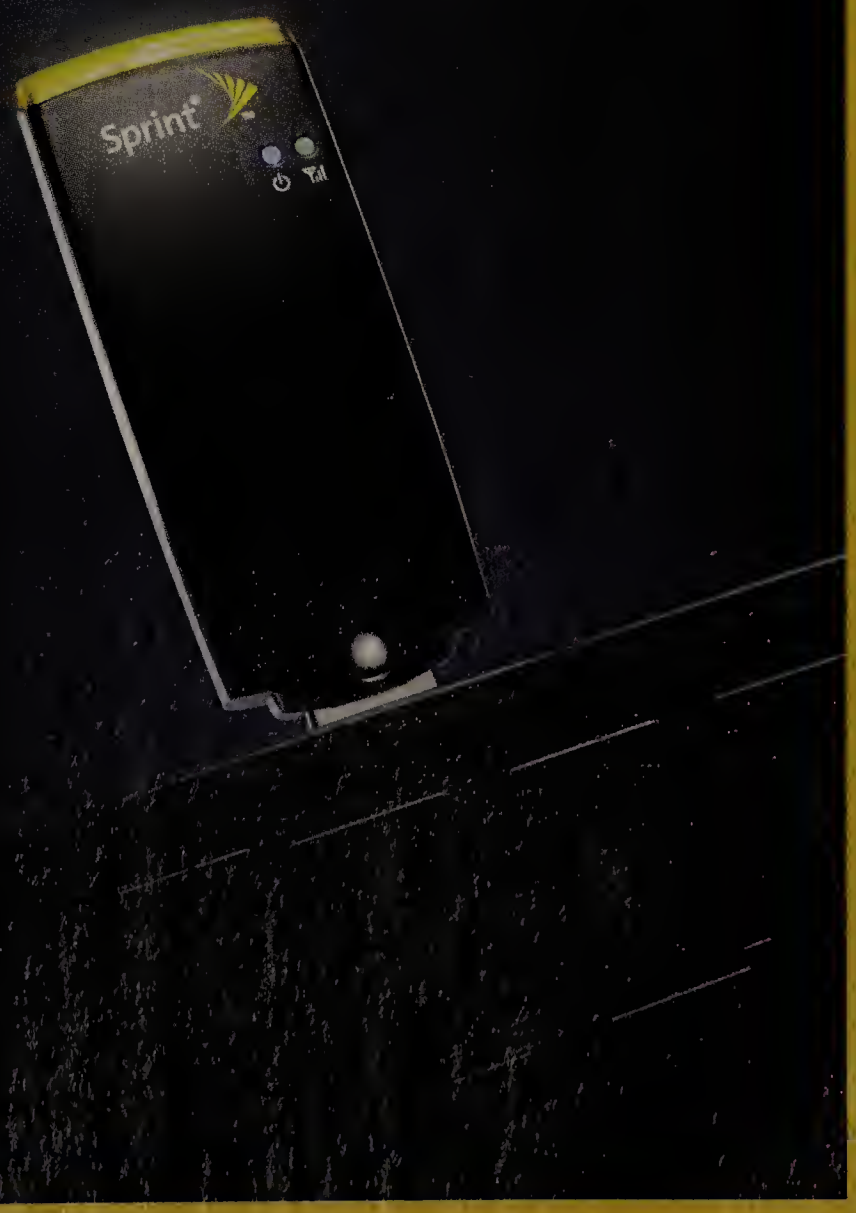
Microsoft hires Seinfeld to bite Apple. Apple keeps pummeling Microsoft in its ads, and yadda, yadda, yadda, the world's largest software maker plans to hire comedian Jerry Seinfeld for its new marketing campaign, according to reports. Continually painted by Apple and other rivals as uncool and unsafe, Microsoft plans to spend $300 million on a new series of advertisements designed around its "Windows Not Walls" slogan that will feature Seinfeld and Microsoft Chairman Bill Gates. Seinfeld will take home $10 million for his role in the spots, *The Wall Street Journal* reported, citing people familiar with the situation. The campaign is expected to debut Sept. 4. **www.nwdocfinder.com/6345**

Start-up applies social networking to app testing. Massachusetts start-up uTest is launching an on-demand service that weds application-testing to social-networking through a community of more than 8,000 professional testers in roughly 130 countries. Users provide uTest with a link to their application and select a test team from the community with the appropriate skill sets and demographics for the job. Customers communicate with testers through the uTest platform, which also integrates with in-house bug-tracking systems, such as Bugzilla. It's not always cost-effective for smaller companies to hire quality-assurance teams, and larger enterprises that want to do some outsourcing might have to sign a long-term contract, said CEO Doron Reuveni. **ww.nwdocfinder.com/6346**

East Coast Web connections run laps around rest of U.S. States on the East Coast have significantly faster median download speeds than the rest of the country, with the top states doubling or nearly tripling the national median speed, a new study claims. The study, which was conducted by affordable-broadband advocacy group Speed Matters, found that the nine states with the fastest median download connections are all located on the East Coast. Rhode Island (6.8Mbps) and Delaware (6.7Mbps) have the fastest, and nearly triple the national median, download speed of 2.3Mbps. Rounding out the Top 5 states are New Jersey (5.8Mbps), Virginia (5Mbps) and Massachusetts (4.6Mbps). The states with the slowest median download speeds include Idaho (1.3Mbps), Wyoming (1.3Mbps), Montana (1.3Mbps) and North Dakota (1.2Mbps). Alaska had the slowest download speed (0.8Mbps).
www.nwdocfinder.com/6347

office forwards
surging stocks
storm coming
28 "urgent" e-mails
presentation.asap
ninth-inning upset
last-minute e-cards
eleventh-hour assignment
celebrity hospitalization
skydiving poodle
free shoe shipping
oops!

Sprint



What are you missing right now?
Keep the best of the Web with you on the nation's largest mobile broadband network.
Just plug it into your laptop and go.

Free

Sierra Wireless Compass™ 597
Requires eligible upgrade (or new service activation) on a business account, data plan and two-year agreement.

Internet to go. Only on the Now Network.™

sprint.com/mobilebroadband

Largest claim based on total network size (sq. miles). May require up to a $36 activation fee/line, credit approval and deposit. $200 early termination fee/line applies. **Mobile Broadband Card Offer:** Offer ends 12/31/08. While supplies last. Requires activation at the time of purchase. Available for corporate-liable accounts (activations using a business name and tax ID) only. **Upgrade:** Existing customers in good standing with service on the same device for more than 22 consecutive months currently activated on a service plan of $34.99 or higher may be eligible. See in-store rebate form or sprint.com/upgrade for details. Pricing, offer terms, fees and features may vary for existing customers not eligible for upgrade. Mobile broadband card data plan required. See sprint.com/coverage for details. **Other Terms:** Offers not available in all markets/retail locations or for all phones/networks. Sprint Mobile Broadband Network reaches over 248 million people (including data roaming). Not available in all markets/retail locations. Other restrictions apply. See store or sprint.com for details.

Disruption-tolerant networks set for large-scale test

BY JOHN COX

Scientists at BBN Technologies have begun readying a large-scale field test of a mobile network designed to keep working despite transmission failures, glitches and long delays.

The test is the third phase of a Department of Defense project to create disruption-tolerant networks, or DTNs. It builds on a field prototype of 20 nodes that was successfully demonstrated last November at the Army's Fort A.P. Hill in Virginia. The large-scale trial, due in late 2009, is intended to show that big DTNs are not only possible but also commercially viable and able to be built with off-the-shelf parts.

To fund Phase 3, the Defense Department's Defense Advanced Research Projects Agency (DARPA) just awarded almost $9 million to BBN. Key priorities involve work on DTN scalability and robustness to support thousands of nodes, and designing and implementing new algorithms for several key tasks. The BBN team also will be working with the U.S. Marines to introduce DTN into the Condor mobile network program, which is designed to link maneuvering units with command centers beyond line-of-sight (about 20 to 30 miles).

Though driven by military networking requirements, DTNs potentially have a much wider applicability. They can sustain communications without the stability, connectivity and predictability required by today's IP networks, including the Internet. If these networks lose a connection or suffer delays, packet deliveries plummet because the existing routing protocols assume an end-to-end path that becomes stable fairly quickly. But those assumptions break down in the face of repeated disconnections and long delays, which can be caused by equipment failures, weather, terrain or jamming.

One civilian prototype is the DieselNet project at the University of Massachusetts-Amherst. DieselNet consists of off-the-shelf single-board computers, GPS receivers and radios mounted in 40 UMass buses. As two buses near each other, their DTN nodes query each other to find out what other nodes each sees most frequently. If one of those other nodes is related to the final network destination of a message, that message is handed off to the passing node in the seconds they're close enough for the Wi-Fi connection. At some point, the message is handed to a node attached to the wired Internet.

Central to DTN's effectiveness is the technology's tenacity.

"IP networks have as a philosophy the idea [that] 'if there's a problem, give up. The user will resend.' DTN doesn't give up. It's constantly trying to move the information forward," says Christopher Small, senior scientist with the Networking Research Group at BBN's Cambridge, Mass., headquarters. "DTN will work around breaks, and route the information any way it can."

That tenacity is due in large part to a new BBN-written routing protocol, called Bundle, which makes use of queuing and other techniques, including one called late binding. With late binding, a source node in a DTN can send a message even though the final destination IP address can't be known due to disruptions of name servers or routers. It's like mailing an

See DTN, page 32

Circles represent radio nodes — "S" for stationary and "M" for a truck-mounted radios — in this aerial photo of DARPA's Fort A.P. Hill demonstration. At left is an IP-only network. At right is the same network with BBN Technologies' disruption-tolerant networking (DTN) protocol stack. The trucks moved continuously between the "forward operating base" at top left and "headquarters" at lower right, in effect ferrying packets between the sites. The brighter the green circle, the greater the number of successful transmissions. Many IP-only nodes found no connection at all.

InBrief

Suing over the iPhone

An Alabama woman filed a lawsuit last week against Apple, claiming the company's iPhone 3G drops calls, has trouble connecting to AT&T's network and is slower than advertised. The suit also seeks class-action status, according to papers filed with a federal court. Dubbing the phone "defective iPhone 3G" throughout her lawsuit, Birmingham resident Jessica Smith charged Apple with breach of express and implied warranty, and failing that, unjust enrichment. Apple's advertising blitz was misleading, the lawsuit claims. "Defendant intended for customers to believe its statements and representations about the defective iPhone 3Gs, and to trust that the device was 'twice as fast at half the price,'" the lawsuit says. Apple did not immediately reply to a request for comment.

Amazon adds persistent storage to compute cloud

Amazon has rolled out a persistent storage feature for its EC2 Elastic Compute Cloud, which should allow developers to use its hosted computing services for a much broader range of applications. The feature, called Elastic Block Store (EBS), lets developers create a 1GB-to-1TB storage volume and attach it to "instances" of applications running in Amazon's cloud. Developers can then detach the storage volume and use it later for other application instances and back it up to Amazon's S3 storage service if they need more durability. Without EBS, the storage volume is tied to a particular instance and the data is lost when the job is terminated, Amazon says.

Free tool tackles dirty data

Open source data-integration vendor Talend has unveiled a tool aimed at scrubbing dirty data from corporate information repositories. Talend Data Quality, which will be available free under a GPL license, ferrets out such errors as duplicate names and address, and improperly configured data including phone numbers. At its most basic, the software can ensure a person's phone number is correct and has the required number of digits; check that ZIP codes match the cities contained in an address entry; and consolidate entries that have names, nicknames or abbreviations that apply to the same person. Talend plans to deliver Data Quality at the end of September and will offer technical support and other services via a subscription that starts at $15,000 per year.

For you, it's a problem you didn't see coming.

For your business, it's a customer you won't see coming back.

You can't anticipate every problem. But Emerson Network Power and its Liebert power and cooling technologies can help you create an IT infrastructure that is ready for anything—unplanned outages, unpredictable growth or unexpected technologies.

One example is the **Liebert NX**, a software-scalable UPS that can double in capacity without adding or modifying hardware. Download our white paper, *Powering Change in the Data Center*, and discover what Liebert technologies can do for your operating flexibility, at flexibility.liebert.com.

Liebert flexibility
Just another reason why Emerson Network Power is the global leader in enabling Business-Critical Continuity.™

EMERSON
Network Power

EMERSON. CONSIDER IT SOLVED.™

Going virtual raises storage issues

Five things to think about before virtualizing storage

BY JON BRODKIN

If you're an IT executive, chances are you're already thinking about storage virtualization. Nearly one-quarter of companies with at least 500 employees have deployed storage virtualization products already, and another 55% plan to do so within two years, a recent Gartner survey found.

Storage virtualization is an abstraction that presents servers and applications a view of storage that is different from physical storage, typically by aggregating multiple storage devices and allowing them to be managed in one administrative console.

The technology is emerging fast onto the enterprise scene for good reasons: In many cases, it can reduce the management burdens associated with storage; and offer better models for data-center migrations, backup and disaster recovery.

Enterasys Networks reaped these benefits recently when it moved a data center from Boston into its headquarters in Andover, Mass.

"In days gone by, before storage virtualization, that might have been an all-day, if not an all-week, kind of process," says Enterasys Vice President of Marketing Trent Waterhouse. "Because of the storage virtualization technologies, the entire move happened in less than 30 minutes."

There are still common pitfalls that storage administrators should ponder, as well as questions they should ask before they roll out a storage-virtualization project. Here's a look at some of the top issues.

Managing capacity

With storage virtualization, allocating storage is easy — perhaps too easy.

"You have the ability to affect more systems in the whole forest if you do something," says Jonathan Smith, CEO of ITonCommand in Denver, Colo., who cautions fellow IT shops to pay close attention to both the storage and performance needs of each application. "You just didn't have that power before. Now all of a sudden you can do whatever you want."

Smith, who is using LeftHand Networks' virtualization on HP storage, says an IT professional might see a lot of empty space in a given storage volume and be tempted to fill it up. Overusing a resource, however, can decrease performance if the storage is allocated to a database or some other I/O-intensive application.

"Make sure you size it correctly and really understand how much horsepower [your applications need]," Smith says.

These concerns are especially true when it comes to thin provisioning, a component of virtualization technology that lets an IT administrator present an application with more storage capacity than is physically allocated to it. This eliminates the problem of storage overprovisioning, in which storage capacity is pre-allocated to applications but never used.

With thin provisioning, more than 100% of storage capacity can be allocated to applications, but capacity remains available because it won't be consumed all at once.

You can play it safe by allocating small volumes that never exceed the physical storage, or allocate as much as you want to each application, then monitor your systems closely, says Themis Tokkaris, systems engineer at Truly Nolen Pest Control in Tucson, Ariz. It's best if you can find a happy balance between those two extremes.

"You have to monitor your pool so you don't run out of space, because that would really crash everything," Tokkaris says.

How server virtualization fits in

A common question is whether it makes sense to virtualize storage if you're not also using server virtualization. The short answer is yes — though it's true you won't get as much flexibility as IT shops that virtualize both servers and storage.

"If you virtualize both, then you have the maximum flexibility when deploying new applications," says Chris Saul, IBM's storage-virtualization marketing manager.

Nevertheless, there are benefits to just virtualizing storage.

Improved disaster recovery, availability and data migrations can all be gained without having virtual servers, says product marketing manager Augie Gonzalez of storage

See Virtualization, page 35

At a glance: storage virtualization

During a recent teleconference, Burton Group senior analyst Pete Lindstrom laid out his "Five immutable laws of virtualization security."

What it is: Storage virtualization is the ability to present files, data volumes and storage devices in a way that hides their physical complexity and offers a single management point for all storage devices, regardless of which vendor made them.

Virtual machines increase the surface area of a potential attack, even if by a small amount, which therefore puts them at a higher risk than their physical counterparts.

Who offers it: IBM, EMC, HP, DataCore Software, NetApp, FalconStor Software, LeftHand Networks, Dell EqualLogic, Cisco

Benefits:

* Increases traditionally poor storage utilization rates.
* Nondisruptive data migration.
* Easier to provide tiered storage offerings.
* Simplifies disaster recovery.

Challenges:

* Vendors not always willing to manage rival storage products.
* By making it easier to allocate storage, virtualization raises danger of overusing resources.

A MESSAGE TO FOUNDRY CUSTOMERS FROM BROCADE.

Dear Valued Customer,

We are very excited to be joining forces with Foundry Networks to provide you and the industry with a broad range of the highest-performance, most reliable networking solutions, from the Internet to the data center.

As an important part of this recent announcement, we want to assure you of our commitment to your infrastructure investment and absolute customer satisfaction. Upon the completion of the acquisition, we look forward to continuing to provide the high levels of innovation, product quality, and customer service that you expect and rely on.

A Commitment to Protecting and Extending Your Investment
We are committed to continuing to deliver and invest in Foundry products and solutions following the closing of the acquisition. As part of this ongoing commitment, we will provide you with a detailed product roadmap after the acquisition closes. You can also count on the combined company to help you implement and support your current and future networking projects, allowing you to maximize the value of your Foundry infrastructure.

A Commitment to Innovative Engineering and Technical Leadership
Foundry customers know that better engineering equates to a better network. We are committed to the retention and continued development of the Foundry engineering teams that have consistently delivered industry-leading solutions, from the enterprise edge to the service provider core. We believe this represents a giant leap forward. And we look forward to continuing to create solutions that enable next-generation, high-performance, end-to-end networks to come to life.

A Commitment to Superior Technical Support and Customer Satisfaction
Brocade and Foundry share many core values, and, for both companies, customer satisfaction is our top priority. We will continue to focus on satisfying the technical and business needs that are mission-critical to your success, including a promise to deliver best-in-class technical support, and to honor all existing contractual service and support commitments.

Brocade and Foundry will continue to operate as independent companies until after the transaction closes. We value your input on how to best serve your needs today and in the future. Please do not hesitate to work with your respective Brocade or Foundry sales representative regarding any questions you might have or any additional feedback you would like to provide.

I hope that you are as excited about the future as we are. We very much look forward to being your high-performance partner for your important networking needs.

Thank you and best,

Michael Klayko
Chief Executive Officer
Brocade

BROCADE

If you would like more information about the acquisition, please see Brocade or Foundry's website at www.brocade.com/convergednetworks or www.foundrynet.com/convergednetworks, or the respective company's SEC filings at www.sec.gov

'White space' spectrum debate to get hotter

BY BRAD REED

Over the next few weeks, the Federal Communications Commission is expected to make a decision that could completely change the mobile-broadband landscape in the United States for years to come.

This summer, the FCC and several wireless carriers and device manufacturers have been testing devices that operate on television "white spaces," or pieces of unlicensed spectrum currently unused by television stations on the VHF and UHF frequency bands. Internet companies, such as Google, and device manufacturers, such as Motorola, have been pushing for the FCC to open up the spectrum for unlicensed use, arguing it would help bring mobile broadband to underserved regions and would help close the so-called "digital divide" between many urban and rural areas in the United States.

The companies have met staunch opposition from the National Association of Broadcasters (NAB), which doesn't want mobile Internet devices operating on unlicensed spectrum clashing with broadcasts on nearby frequencies. Past FCC tests on white-space devices have lent credence to the broadcasters' concerns, because some devices were found to interfere with other broadcasts and were unable to detect consistently or accurately the presence of other TV or wireless microphone signals.

Additionally, telecom giant Verizon recently indicated it also opposes opening up the unlicensed spectrum for device use, asserting that the company has been unimpressed with the white-space device tests so far and that it "generally . . . favored licensed spectrum" for wireless devices.

The issues that have to be resolved

Both sides in the white-space debate have clear and understandable economic motives. On the "pro" side, such tech companies as Google and Microsoft have a clear vested interest in spreading the mobile Web to as many people as possible, because expansion will generate more revenue for their search engine and Windows Mobile platforms, respectively. Similarly, laptop and smart-phone manufacturers, such as Dell and Motorola, want to sell more devices to more people; and being able to use mobile devices on unlicensed spectrum will open up a new market.

Lining up against using white-space spectrum are broadcasters that want to protect the quality of their broadcasts on licensed spectrum by eliminating any and all potential sources of interference. Kelly Williams, the senior director of engineering and technology policy for the NAB, staked out an inflexible position at a Wireless Communications Association meeting earlier this year, saying any mobile-device use of white spaces was unacceptable and no amount of testing by the FCC could change his mind.

Specifically, Williams said it would be impossible for the FCC to approve using unlicensed portable devices on white spaces, because doing so inevitably would interfere with the rights of licensed spectrum holders. "We don't like transmitters that move around," he said. "I don't see how a truly personal and portable device can actually work on those white spaces because it would need to know at all times just how far away it is from a consumer's TV set, and also what channel that TV is set to. It can never know that."

Tech companies have been trying to work around this problem by creating devices that can detect rival signals in the area and automatically shut down when they begin interfering with licensed spectrum already in use. Thus, for instance, a Bluetooth handset operating unlicensed on white spaces might flip off automatically if it came close to a working television. However, there has been a growing realization among white-space device-use proponents that adding sensing abilities to devices by itself won't cut it, because the FCC's tests found that device-sensing capabilities were poor at detecting such devices as wireless microphones that also use unlicensed frequencies.

Motorola has started working on a solution to this problem, testing its

See Spectrum, page 35

Open source looks to shake off security concerns

BY ELLEN MESSMER

Although open source software has gained a place in enterprise networks alongside proprietary software, it can't seem to shake the doubts about security and intellectual-property issues that have long dogged the movement.

"The advantage of open source is that no single entity has authoritative control over a project," says Mark Driver, an analyst at Gartner. "There's no single choke point." One theory holds that because it's open source, software-security problems can be discovered quickly, he says. "But one argument says open source is less secure and people can put bad things in it, and that's true, too," he adds.

Whatever the doubts, the open source movement, now counting in the tens of thousands of "communities" of volunteer software developers, is coding en masse to yield a bounty of operating systems and applications.

Open source software components are being worked into commercial software through such tools as Eclipse and NetBeans. Gartner estimates that by 2013, 80% or more of commercial software in production will have elements of open source.

The trend today is for IT managers in business and government to try to assess each open source software project by the company it keeps, critically viewing the maturity of each community in maintaining its code base by adding extensions or fixing bugs. If such established vendors as IBM, Red Hat and HP are involved in supporting the software, that's usually seen as a plus.

The most ambitious open source adopters for business use still tend to be the "technology aggressive," Driver says, because they have an internal R&D team that can support open source, or they will hire support from vendors.

So what more-pressing security and intellectual-property implications remain? One question is how security vulnerabilities are discovered and fixed. There is often a different methodology at work than can be found with closed-source, proprietary software vendors.

Microsoft — once close-minded, wary and stubborn about accepting advice from outsiders about discovered security flaws in its products — has gradually opened up over the years to establish clear lines of contact with security experts to discreetly share critical information about vulnerabilities they discover.

Microsoft's latest effort in this area, unveiled this month, draws security vendors even closer to the Redmond giant, promising a select group of them access to vulnerability data well in advance of Microsoft's monthly security advisories so their software-remediation products can be ready at the moment of Microsoft's public notifications. Microsoft says it's doing this to thwart hackers exploiting vulnerability information to design zero-day attacks.

In contrast, the open source communities often fail to have clear lines of communication with outsiders who may be security experts, whom they tend to distrust. In any event, keeping secrets goes against the grain of the open source spirit for many.

"The open source software development model is so different," says Stormy Peters, executive director of the GNOME Foundation, which makes the open source desktop application for Linux distributed by many vendors, including Novell and Red Hat. "Expecting there to be security services or a contact for a particular project is not likely to happen in open source, but usually there is a mailing list."

That mailing list is usually open, as are any bug-tracking systems. "Whenever the problem is fixed, we issue a patch," Peters says about GNOME, saying that responsibility usually falls on whoever has "commit access," the right to check in changed code.

Open source is a "meritocracy," Peters says, and though a community feels most comfortable with its own, "there's definitely a way for outsiders to interact with the group, as long as you look credible."

Peters, who also works at consulting firm OpenLogic — which plays

See Open source, page 47

Virtual system makes house calls

Voice-activated system extends healthcare to patients' homes

BY ANN BEDNARZ

Four months go by, on average, between scheduled checkups for patients with chronic diseases such as diabetes, obesity and hypertension. A lot can happen between visits, and researchers at Boston Medical Center are pioneering ways to stay virtually connected with patients so that healthcare issues can be addressed without delay.

The goal is to provide guidance and information when patients need it, during their daily lives and not just during scheduled doctor visits, says Robert Friedman, a physician and head of a team at Boston Medical Center that's developing telephone-based systems for delivering virtual care.

"What we're trying to do is catch problems earlier and then facilitate physicians and other health professionals to do something earlier," says Friedman, who is chief of the Medical Information Systems Unit at Boston Medical Center. "We're also educating people how to take care of themselves, encouraging them, monitoring what they do, and counseling them. There's a psychological and behavioral intervention component to it, too."

Using speech recognition and interactive voice response (IVR) technologies, Friedman and his team have developed automated applications that screen patients by emulating what a healthcare professional might do.

Patients dial the systems from their homes, or the systems make outbound calls (particularly if someone misses a virtual appointment). They're prompted to input information, such as blood pressure or weight, using speech or keypads. They're also asked questions such as whether they are exercising, sticking to a diet and taking medication regularly.

The system analyzes the data and provides patients with feedback and coaching, using digitized human speech or text-to-speech generators. It also alerts appropriate parties if there are signs of trouble or indications that someone's healthcare regimen needs to be modified.

"It's in real time, so someone is on the phone, taking their blood pressure or answering a question, and that's being reported to physicians or clinicians electronically," Friedman says.

Most recently Boston Medical Center went live with a system that targets people at risk of substance abuse problems. Developed for the Massachusetts Department of Health, the application uses data from medical practices to screen primary care patients for undiagnosed substance abuse problems.

The system is capable of reaching thousands of people every week — which would be prohibitively expensive for healthcare providers to do in-person. "Early detection is critical for people in the beginning phases of addiction. With the voice-activated system, we can get to them right away," says Amy Rubin, a clinical psychologist and member of the Boston Medical Center development team.

New delivery models

The idea of using telephone systems to deliver healthcare to people in their homes is not new. Friedman, for instance, has spent 25 years working on increasingly advanced systems for delivering virtual care.

What's most different between Friedman's early applications and those he's creating today is the use of a commercial platform for developing, deploying and managing applications.

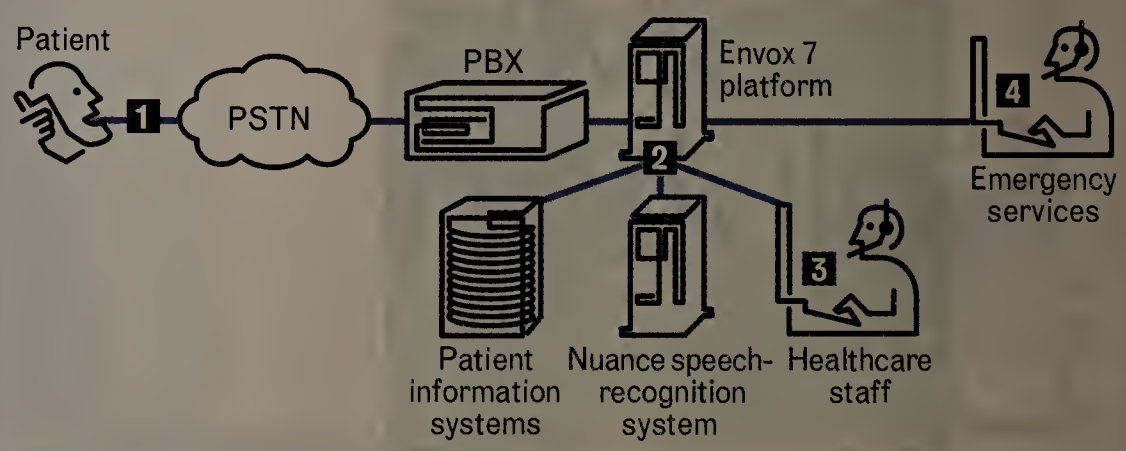
Boston Medical Center uses the Envox Communications Development Platform 7, which combines a programming environment for developing applications with a VoiceXML gateway and run-time environment. Management and administration tools round out the platform.

On the telephony front, the Envox system performs tasks such as answering and placing calls, planning menus, executing options, and monitoring or recording calls. It's tied to a Nuance Communications platform for speech recognition, and it's also integrated with some of the medical center's patient systems. The software-based Envox 7 platform can be deployed on standard Windows servers, and it adheres to standards including Session Initiation Protocol, H.323, CCXML and VoiceXML.

For Friedman, shifting from proprietary, homegrown systems to a standards-based platform has enabled him and his team to build and deploy applications more quickly. "We built the first IVR system we used," he recalls. "But trying to build your own IVR system, maintain it and improve it is a whole business in itself." ■

Virtual visits

Boston Medical Center uses speech recognition and interactive voice response technologies to stay in touch with patients between scheduled appointments.



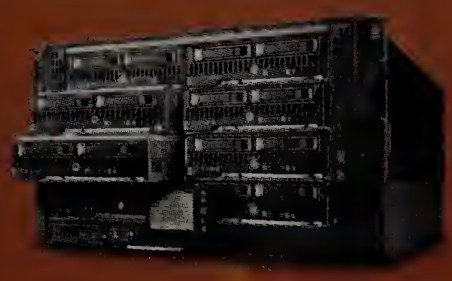
1. The patient dials the system and inputs requested information, such as weight, blood pressure and medication status.
2. The system analyzes the data based on the patient's history and accepted medical thresholds, and provides the patient with feedback and coaching.
3. Alerts are sent to medical staff if there are signs of trouble or indications that the patient's healthcare regimen needs to be adjusted.
4. Emergency personnel are notified if a situation is critical.

ALTERNATIVE THINKING ABOUT SERVER MANAGEMENT.

Virtual connections keep you ready for virtually anything.

The HP BladeSystem c-Class helps free I.T. from the cycle of server management. It's equipped with HP's exclusive Virtual Connect Architecture, which virtualizes your LAN/SAN settings, so you only wire once and can make network changes on the fly. This drastically improves efficiency and service levels and gives you the time to focus on the things that really drive your business.

Technology for better business outcomes.



HP BladeSystem c3000
Featuring efficient
Quad-Core AMD Opteron™ processors.

HP BladeSystem c7000
Featuring efficient
Quad-Core AMD Opteron™ processors.

AMD Opteron 64

To learn more, call 1-888-860-9573 or visit hp.com/go/BeReady46

hp

A terminal delay in enhanced advertising?

NET INSIDER
Scott Bradner

This cannot be a comfortable time for the venture capitalists who invested in NebuAd, an advertising service that tracks users' Web activities. Overwhelmingly negative attention by the press and a congressional committee are not the way for a company that has depended on having a low profile to have an assured future.

Over the course of the last few months, NebuAd has become, perhaps somewhat unfairly, the poster child for greedy ISPs and privacy invasion; and this attention seems to have dried up its already small pool of tone-deaf ISPs that were trying out the technology.

I wrote about NebuAd more than a year ago (www.nwdocfinder.com/6321).

After talking to the company , I concluded it was trying to be responsible, but I still did not much like what it was doing. I particularly did not like its ineffectual, cookie-based opt-out mechanism; and although I did not say it at the time, I'm not sure that the data the company collects is as anonymous as it maintains. NebuAd says it does not collect detailed information about Internet activity, but only notes rough categories of visited sites and hashes the IP address before it stores that data.

I expect, however, that if NebuAd were supplied with an IP address, it could tell you the categories of sites that the computer with that IP address visited. Not a big risk, but a privacy issue in any case.

NebuAd's activities have been the subject of congressional hearings and a lot of posturing by politicians. I expect that its CEO does not have warm feelings for Washington, D.C., these days. As part of one of these hearings, the House Committee on Energy and Commerce asked 33 ISPs and other Internet companies to respond to a series of questions about their use of technology like NebuAd's. The committee received 31 real responses and one plea for more time.

Some of these responses are quite interesting. No one admits to be using NebuAd, but a couple of ISPs said they had run trials that they stopped after they saw the adverse publicity about the idea and vendor. Most ISPs said they did not use anything like NebuAd and had no plans to, but quite a few hedged their bets a bit, maybe to preserve their options. The response that was most to the point came from Frontier Communications, whose one-paragraph letter basically said, "Frontier does not and cannot do this kind of thing, so the answers to your questions are 'no' or 'not applicable.'"

The ISPs that had tested NebuAd said it was "advanced advertising" that would "help improve your favorite websites by showing ads that are relevant to you, and reduce clutter."

They also pointed to NebuAd's poor opt-out process. NebuAd recently said it was going to come up with a non-cookie-based opt-out mechanism but if the company actually believed that it provided value to the customer, it would switch to opt-in.

The most interesting response was from AT&T. It basically said it did not use this kind of technology but that such technology "could prove quite valuable to consumers and could dramatically improve their online experience."

I bet AT&T does not believe this enough to use opt-in, however. AT&T also said that Google was far worse than anything that NebuAd-like technologies could do. The carrier is not wrong, but claiming to be good by not being as bad as the other guy does not make me feel warm and fuzzy.

Disclaimer: Places like Harvard are not supposed to make you feel warm and fuzzy, at least intellectually, but the university has expressed no opinion on NebuAd or AT&T, so the above view is mine.

Bradner is Harvard University's technology security officer. He can be reached at sob@sobco.com.

Online profiling: DPI's bad, data mining's worse

EYE ON THE CARRIERS
Johna Till Johnson

Congress recently issued a request to carriers, telecom providers and ISPs to explain exactly how, and under what circumstances, they're inspecting user online content. Specifically, they're concerned about deep packet inspection — a generic name for technologies that enable service providers to capture and inspect packet flows.

Apparently the folks in Washington, D.C., have short memories. Back in 1994, Congress passed the Communications Assistance for Law Enforcement Act, which mandates that carriers be able to capture and inspect packet flows (and forward them to law enforcement agencies) — which pretty much requires DPI.

But that's not all. As AT&T points out in its response to the Congressional request, if the real concern is tracking online behavior, DPI is a red herring. Search and application vendors, such as Google, regularly scan user content and use data-mining techniques to build online profiles of users.

Specifically, Google routinely searches through e-mails sent or received within Gmail to enable it to provide "customized content and advertising." These e-mail scans also are cross-correlated with Web searches. For example, Google may note that I mentioned plans for a trail hike in an e-mail to a friend, then conducted a Web search hours later for "trail shoes."

There are two key points here. First is that if the feds think DPI is a bad idea, they shouldn't have written laws that essentially require it. Second, if you think DPI is bad — data mining is plenty worse. As noted above, Google and others today are scanning e-mails on a regular basis — something carriers don't do.

In short, if you hate DPI, you should despise data mining.

Weirdly enough, however, the same folks who castigate carriers for DPI often defend search engines and application vendors for data mining. Their most common defense is that search engines are "opt-in."

Sorry, guys, that's bogus. All content stored on Google's site is scanned. That includes mail to a Gmail account — even if the sender didn't realize it was being delivered.

As the good folks at the Electronic Privacy Information Center note: "Non-subscribers who are e-mailing a Gmail user have not consented, and indeed may not even be aware that their communications are being analyzed or that a profile may being compiled on him or her."

Moreover, many cash-strapped organizations, such as schools and universities, are planning to outsource their e-mail to Google, thereby requiring students to hold Gmail accounts. No opt-out options available.

The bottom line? The United States sorely needs a privacy policy that will articulate what service providers can and can't do with user data — and under what circumstances. That policy should apply to search and applications vendors, as well as telcos and ISPs. And it shouldn't contain contradictions, such as disallowing and requiring DPI simultaneously.

Johnson is president and senior founding partner at Nemertes Research, a leading independent technology research firm. She can be reached at johna@nemertes.com.

Thin is in.

Thin AP technology
Thin 12-mm profile
Fits in the smallest spaces

Introducing the Wi-Jack Duo™, the world's smallest, thinnest 802.11a/b/g wireless access point. Its centrally managed thin AP technology means better security and easier management. The sleek design fits unobtrusively into a standard wall box and supports an optional network port. Thin is in for higher performance in wireless network performance.

Get the story on why the Wi-Jack Duo is the perfect wireless solution by calling 800-934-5432 or visiting **www.ortronics.com/wi-jack**

Come see us at Interop Booth 237

ORTRONICS

legrand®

EXPERTISE. TECHNOLOGY. SOLUTIONS.

The road to virtualization now

InfraStruXure®

DATA CENTERS ON DEMAND

"Our innovative cooling approach at both the rack and room level enables us to quickly and simply grow our data center spaces as needed using a modular approach.

Instead of trying to reassess the entire room and figure out where the best location is for a rack, the InfraStruXure can actually adapt to where the user wants to put the rack."

Mike Ryan
Design Engineer,
(PE) and Data Center Design Services

Sun's Workplace Resources
Global Lab & Data Center Design Services Team (GDS)
(from right to left) Bret Rucker, Ramesh KV, Dean Nelson, Petr Vlasaty, Serena Devito, Mike Ryan & Brian Day

7 Principles of InfraStruXure® HD-Ready architecture...

1 Rack enclosures that are HD-Ready
Start with vendor neutral NetShelter® SX racks, engineered to handle the airflow and power needs of power-hungry, high-density servers.

2 Metered PDUs at the rack level
Install metered rack PDUs to indicate which racks and outlets have capacity for new HD servers... and which ones don't.

3 Temperature monitoring in the racks
Add local or remote monitoring of temperature and humidity where it counts–in your enclosures.

4 Centralized monitoring software
Monitor all power, cooling, security, and environments from one management system using real-time data at the row, rack, and U-level.

5 Operations software with predictive capacity management
Conventional operations software simply manages inventory fluctuations and configuration changes. Our capacity management software does this and more–simulating and predicting the true impact a new server or other equipment will have on your power and cooling infrastructure. Only through predictive simulation can you avoid overloading circuits and generating hot spots.

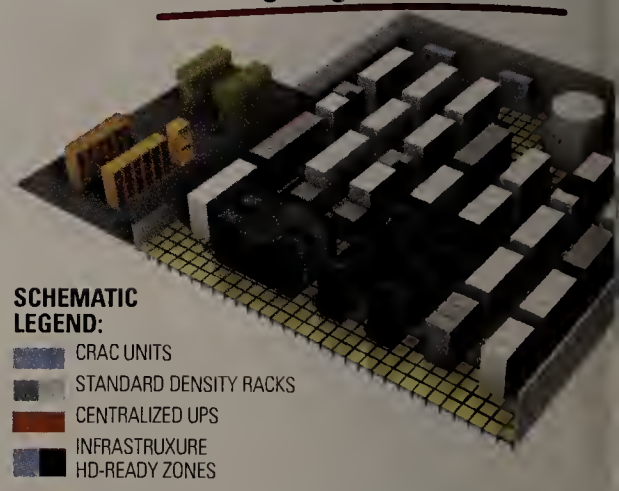
APC's ***Capacity Manager*** *has received a 2007 Data Center Products of the Year Gold Award from Searchdatacenter.com*

6 Efficient InRow® cooling products
Innovative, responsive variable speed fans optimize efficiency by closely matching performance to your variable cooling needs.

7 UPS power that is flexible and scalable
Respond quickly and efficiently, without wasteful oversizing, as UPS power demand grows. Depending on your needs, choose a scalable row, in-room, or back room UPS solution.

You can deploy High-Density

...overlay an InfraStruXure zone into an existing large data center...

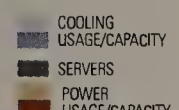


Running a large data center facility is challenging enough without the intense pressures on power, cooling and management caused by high-density computing and exacerbated by virtualization. The flexible InfraStruXure architecture allows you to identify your specific areas of high-density computing and "overlay" the InfraStruXure zone – no matter the size or configuration. Not only is InfraStruXure compatible with all leading IT brands, but also with any and all existing power and cooling architectures. Neutralize and manage high-density zones in your existing facility that would otherwise be too hot to cool with perimeter-only solutions.

has a high speed lane.

Efficiency & Virtualization

Your servers are efficient, but is your power and cooling?



Pre-Server Virtualization

Big gains could be made with both server and power and cooling.

- ☐ Correct Server Utilization
- ☐ Correct-sized Power
- ☐ Correct-sized Cooling

29%* Efficiency

Post-Server Virtualization

Grossly oversized power and cooling cancels out potential gains made by virtualizing.

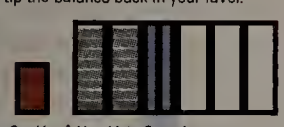
- ☑ Correct Server Utilization
- ☐ Correct-sized Power
- ☐ Correct-sized Cooling

16%* Efficiency

Server Virtualization with Power and Cooling

Right-sized power and cooling tip the balance back in your favor.

- ☑ Correct Server Utilization
- ☑ Correct-sized Power
- ☑ Correct-sized Cooling



78%* Efficiency

The 13,000 square foot APC InfraStruXure® Hot Aisle Containment compute space had a measured Data Center Efficiency DCiE of 78% (PUE 1.28)

Cooling with InRow® leads to highest efficiency...

Gain thermal efficiency with our InRow cooling products. Closely coupling the AC with the heat source reduces the distance cold air must travel (from 50 feet down to 5 feet), prevents hot exhaust air from mixing with cool air in the room, and allows more targeted precision cooling.

the green grid

***Efficiency Index:** According to the Green Grid, efficiency is based on the relative relationship between server utilization and the overall power and cooling efficiency. If you right-size one without the other, you won't realize true efficiency gains.

(HD) racks right now...

...or deploy InfraStruXure as the foundation of your entire data center or server room.

As technology shifts toward high-density, forward-thinking IT managers are laying basic HD framework in place, so they can respond quickly to future change. InfraStruXure is a simple yet dynamic drop-in solution that can be quickly scaled up to higher density. When you're ready, go from low to high density by adding enhanced monitoring, power and temperature control, software management, and higher capacity AC units.

If you're already feeling the heat from high-density driven by virtualization, the InfraStruXure HD-Ready system's row based cooling and management will allow you to handle 20kW or more per rack and deliver system-wide visibility and control. The standardized architecture lets you grow modularly over time, or virtualize anywhere and anytime you need to.

Virtualization is here to stay.

And it's no wonder, since it saves space, reduces power consumption and gives the flexibility and control to maximize your IT resources. But these benefits of a smaller footprint come at a cost. Virtualized servers, even at 50% capacity, require special attention to cooling, no matter the size of the zone, system, or overall data center.

1. **Heat** Server consolidation creates higher densities per rack. This, in turn, generates more and more heat, putting your equipment and overall system at risk for downtime and failure.

2. **Inefficiency** Perimeter-only cooling solutions just can't handle the heat at its source in the racks or rows where higher densities exist. As a result, you're forced to compensate by over cooling at high energy costs–with disappointing results.

3. **Power Events** Virtual loads are constantly on the move, making it hard to predict available power and cooling. One tripped breaker could mean serious and irreversible damage to your network.

Removes barriers to high-density, for good.

Power and cooling issues driven by high-density shouldn't stop you from adopting valuable trends like virtualization. This is why APC has created the HD-Ready InfraStruXure architecture. As a stand-alone system or as a zone within your existing data center, InfraStruXure gets you to the next level.

Simple to design, configure, and install, HD-Ready InfraStruXure architecture lets you decide when and where to handle higher densities, in a specific zone or system-wide. Now, with HD-Ready InfraStruXure, you can get cooling into the virtualized high-density row, control power at the rack level, and manage the system through advanced software and simulation, which alerts you to potential threats to a virtualized environment.

Take the right-sized approach to true efficiency.

You're virtualizing to reduce overall energy consumption. By eliminating under-utilized servers (sometimes at a 7:1 ratio) you will waste less energy. But wait... data center efficiency depends on the relative efficiencies of power, cooling, and servers. You can't right-size one and not the others. If you do, you've just left your efficiency savings on the table (See "Efficiency and Virtualization" to the left).

To right-size, you can depend on the efficient and modular HD-Ready InfraStruXure. Its UPS technology, combined with our one-of-a-kind row based cooling technology with optional hot aisle containment, will neutralize heat at the source. Your equipment will be safer and more efficient running closer to 100% capacity. No more threats to equipment, no more under-utilized, oversized power and cooling.

Don't agonize, virtualize.

What are you waiting for? The APC HD-Ready InfraStruXure architecture is so versatile, anyone can virtualize, anytime, anywhere. Just drop it in and go.

APC by Schneider Electric

Why do leading companies prefer InfraStruXure 6 to 1 over traditional data center designs? Find out at www.xcompatible.com

The following have been tested and work best with InfraStruXure Solutions...

SQUARE D

Square D® is a market-leading global brand of Schneider Electric for NEMA type electrical distribution and industrial control products, systems and services.

t.a.c.

TAC provides building environment services for indoor climate, security and energy use, via advanced technology to end-users and property.

DELL

Dell is a global systems and services company offering a broad range of product categories including desktop computer systems, servers and networking products, mobility products, software and peripherals and enhanced services.

CISCO PARTNER Technology Developer

Cisco, the leading supplier of networking equipment and network management for the Internet, recognizes APC as a Cisco Technology Developer Program partner for its InfraStruXure® architecture.

Microsoft

APC is proud to be recognized as a supporter of the Microsoft Technology Centers throughout the U.S. with our InfraStruXure solution.

PELCO

Pelco is a worldwide leader in the design, development and manufacturing of video security systems.

EMC² SELECT

APC is a member of the EMC Select program which offers the InfraStruXure product line to complete your EMC Storage Solution.

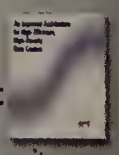
IBM ALLIANCE PARTNER

The largest computer company in the world, IBM manufactures and sells hardware and software and offers infrastructure services, hosting services, and consulting services in areas ranging from mainframe computers to nanotechnology.

Sun microsystems

Sun Microsystems develops the most innovative products and services that power the network economy. Guided by a singular vision – "The Network is the Computer" – Sun drives network participation through shared innovation, community development and open source leadership.

Go to www.xcompatible.com to learn more about how these products work with InfraStruXure's high-density solutions.



Download a FREE copy of APC White Paper #126: "An Improved Architecture for High-Efficiency, High-Density Data Centers" and start running more efficiently today!

Visit www.apc.com/promo
Enter Key Code c661w
Call 888-289-APCC x9614
Fax 401-788-2797

e-mail: esupport@apc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA 998-1255

RFID proving to be Rx for hospitals

Wireless technology being used to track everything from drugs to doctors

BY JOHN COX

A new study shows hospitals are aggressively deploying a range of active and some passive radio-frequency identification systems.

The payback no longer is simply being able to find medical equipment, including wheelchairs. Increasingly, wireless identification and location data is being used to streamline and repair a range of healthcare workflows and business processes.

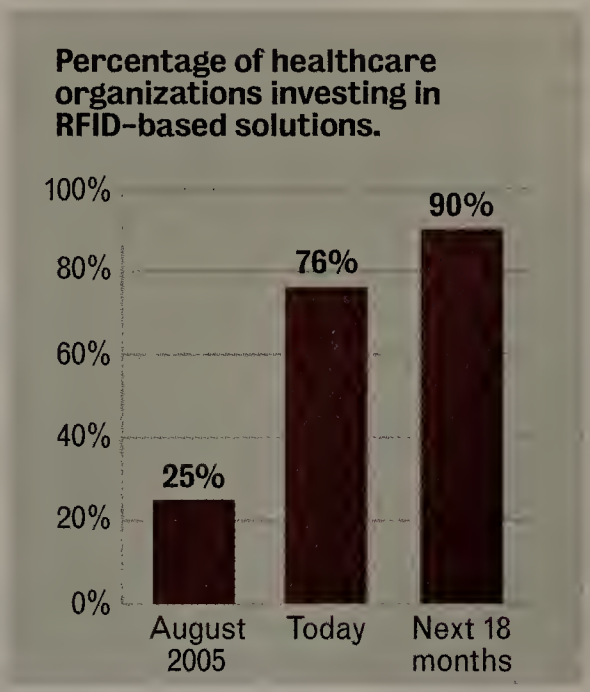
The study, "Trends in RFID 2008," is based on 100 telephone interviews conducted earlier this year with IT professionals and clinical and nursing directors at hospitals with typically 300 or more beds. It was carried out by Greg Malkary, founder and managing director of Spyglass Consulting Group, a market-intelligence and research firm in California.

A previous Spyglass study was done in 2005. Since then, the number of RFID-based applications has tripled, Malkary found. "A few years ago, they were trialing [RFID] technology, with a few hundred objects being tracked," he says. Now there are large-scale product deployments rolling out, tracking thousands of objects in multiple locations.

Harrisburg Hospital in Pennsylvania deployed a patient-tracking system from PeriOptimum for surgical patients, then expanded the 433MHz wireless infrastructure from Radianse to track wheelchairs and a wide range of portable medical gear. By the end of 2008, the hospital plans to have nearly 10,000 wireless tags deployed. As at Harrisburg, many of these applications are "active RFID" — with a radio embedded in a tag that's able to transmit a signal on its own. These products use a variety of frequency bands, and in some cases are Wi-Fi based. Passive RFID tags lack a radio: When they come near a tag reader, the reader's radio activates the tag, which reflects some of the signal's energy back to the reader, carrying with it the tag's unique ID number.

Early applications, such as infant-tracking systems, are giving way to staff tracking, combined with time-motion studies to optimize workflows in such areas as radiology and surgical departments. "You can see where people are and figure out how they're spending their time," Malkary says. The 2008 interviewees linked RFID data to quality-improvement programs, such as Six Sigma.

One notable technology shift is healthcare's willingness to embrace multiple wireless technologies. The 2005 Spyglass study found that 90% of respondents were unwilling to invest in wireless that didn't use their existing wireless LAN (WLAN) or corporate backbones. "Today they are much more open to multiple technology investments to get increased levels of [location] accuracy," Malkary says.



Accuracy varies. Wi-Fi location systems are accurate enough to place tagged objects or people in general areas. However, some applications need more precision or more control, or both: to determine whether high-value drugs are in a refrigerator, for example, or whether high-value medical equipment is in a sterilization room. Using proprietary radios in other frequency bands or passive RFID systems are alternatives.

One example is a project from the University of Wisconsin-Madison RFID Lab, which has partnered with three national blood centers to use RFID to manage the complete blood-supply chain for blood used in transfusions, as well as associated medications. The goal is to improve the safety, efficiency and accuracy of the U.S. blood supply.

RFID investments still tend to focus on department-level problems, not hospitalwide ones. One hospital Malkary covered in depth is Christiana Hospital in Newark, Del., where the emergency department has 76 treatment rooms that handle more than 100,000 patients yearly. The problem was that triage nurses were losing track of where patients were in the treatment process as they were moved among diagnostic and treatment facilities. The result: The overall length of a patient's stay was spiking above normal levels, and about 4% to 5% were leaving without any treatment at all.

Christiana Hospital combined a tracking system from Patient Care Technology Systems with an infrared-sensor network for locating hardware assets from Venus Technology. The Web-based application shows tagged patients, staff and various medical assets; and creates a visual workflow for patient progress. The data is filtered through various subset views so departments can anticipate and manage the number of patients and streamline their progress. With accurate data, the length of patients' stays has been reduced. ■

Microsoft invests more in Novell

BY JOHN FONTANA

Microsoft last week said it would spend as much as another $100 million to purchase certificates it will distribute to users who can cash them in for support on their Novell SUSE Linux Enterprise Servers.

The investment, which will come on Nov. 1, is on top of the $240 million Microsoft agreed in 2006 to spend on certificates as part of a five-year business and technology deal with Novell that also included intellectual property rights protection.

In addition, Microsoft will provide materials, such as best practices, tips and tricks; and online training to help users migrate from non-Novell platforms to Novell's Linux operating system.

Microsoft also will offer migration assistance, including some help that will carry a fee.

The two vendors claim the $100 million investment is needed to meet customer demand to integrate Linux and Windows. However, Novell has only invoiced $156 million of Microsoft's original $240 million certificate purchase, leaving 35% of the funds still unused.

The original deal, which raised the ire of the open source community, covered the distribution of 70,000 certificates for SUSE Linux Enterprise Server maintenance and support.

"As we look quarter by quarter to number of customers grow and our expectation is we are on track to deliver on the original commitment, and we feel good about the incremental investment we added," said Susan Hauser, general manager of strategic partnerships and licensing at Microsoft.

In November 2006, Microsoft and Novell unveiled a partnership designed to make it easier for companies to run, integrate and manage Linux and Windows in their environments while steering clear of patent and intellectual property concerns.

An agreement by Microsoft not to assert patent and intellectual property rights runs through 2012. ■

How Many Ways Can You Spot Cool?

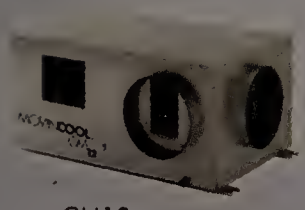
5. Pour bucket over head.
4. Dance with penguins.
3. Eat an ice cream cone.
2. Run thru sprinklers.

Get a **$100 Gift Card** with purchase.
Plus...enter free drawing for tickets & travel package to the **2008 Baseball Fall Classic.**
Visit movincool.com/doubleplay

#1. Roll in a MOVINCOOL®

There are endless ways to cool things down.
But not all of them make the most sense for you.

When you need spot cooling for servers, telecom rooms, or office environments, the Office Pro Series by MovinCool is your best solution. Flexible, cost-effective and fully self-contained, these models range from 1 to 5 tons of cooling and run off 115, 208, 230 and 460 voltages. The Office Pro portable air conditioners also cool-down to 65°F, making them perfect for any room with heat-generating equipment. Why run thru sprinklers when you can simply roll a unit in, set the digital temperature controller and walk away.



CM12

Classic and Classic Plus Series

Office Pro Series

To learn more about
our complete line of spot air conditioners
visit movincool.com or call
800-264-9573

MOVINCOOL®
THE #1 SPOT COOLING SOLUTION
A division of DENSO Corporation

ENERGY COSTS DOWN, KARMA UP.

Today, datacenters consume up to 30 times more energy per square foot than a typical office. Energy costs eat 30%–40% of operational budgets. And energy usage is expected to double in five years. Is there an answer? There is: green datacenter and IT services from IBM that help you implement energy conservation policies in your datacenter and measure, manage and report on real results against those plans. Many IBM customers have doubled their IT capacity while others have reduced energy costs by 40% or more. A greener world starts with greener business. Greener business starts with IBM.

SYSTEMS. SOFTWARE. SERVICES. FOR A GREENER WORLD.

Take the first step toward a greener datacenter at **ibm.com**/green/services

IBM®

Virtualizing network security

BY JIM FREEZE

Enterprise network managers are looking to virtualize more data center resources, but they hesitate when it comes to security. They want the resource sharing and hardware consolidation that virtualization offers but aren't willing to risk compromising security.

So, to meet security demands they set up racks of appliances and network gear (such as load balancers) to handle firewall, antivirus, antispam, intrusion-detection/prevention systems, content filtering and other security tasks. As network traffic grows and strains the systems' performance, IT meets the rising demand by adding more appliances, load balancers, switches and cabling, as well as redundant hardware to ensure the necessary reliability.

The resulting appliance sprawl creates a chaotic architecture that is increasingly difficult and expensive to manage and maintain, and a security nightmare waiting to happen.

The critical requirements for enterprise security are superior application performance, ultra-low latency, massive scalability, ultra-high reliability and low total cost of ownership (TCO). While best-of-breed appliance platforms have become the solution of choice, they fail to deliver massive scalability. Sprawling networks of hardware, cables and traffic-control gear provide an enterprise-size security solution, but at the cost of complexity.

They also fail to meet performance requirements in the form of low latency and high reliability, and TCO goes through the roof. Unified threat management devices unify security applications by bringing together acquired technologies into a single solution, but users must sacrifice best-of-breed choice in exchange for ease of management, a risk that large enterprises are unwilling to accept.

So, what is the alternative to appliance sprawl and low-end unified boxes? An ideal solution would deliver key operational, technical and economic benefits, including:

- Consolidation of appliance computing resources and the network gear required to connect them.
- Real virtualization capabilities that dramatically improve resource utilization.
- True linear scalability, enabling efficient growth for existing applications as well as the ability to add new ones.
- Support for multiple, best-in-class third-party applications for major security areas including firewall, IDS/IPS and content gateways.
- Simplification of the architecture supporting multiple security services.
- Material long-term capital and operational savings.

To address these desired benefits, security technologies are being integrated into platforms that enable the consolidation and virtualization of racks of appliances and multiple third-party applications, such as firewall, IDS/IPS, antivirus/antispam, content checking and URL filtering. This approach makes it possible to streamline security processes; consolidate switches, load balancers and security appliances; and virtualize the delivery of multiple best-of-breed security applications.

An integrated security platform can be highly scalable, combining specialized application processing and IP network blades with a high-throughput backplane and a hardened operating system. These components create a sophisticated yet simplified solution that consolidates the appliances, switches, load balancers, taps and port mirrors in traditional networks while virtualizing the delivery of security applications. Consolidation reduces capital expenditures and delivers operational savings.

The hardware

One of the primary functions of an integrated security platform is highly scalable network processing at 10-gigabit-plus speeds. Thus, such platforms must allow for the scaling of IP forwarding capability by supporting additional network blades as needed. Moreover, these blades must also serve as switching and load-balancing centers that route and evenly distribute network flows to application processors.

Security application processing is provided by a second type of blade, which provides single-blade, multicore processing capabilities that replicate the computing power of special-purpose security appliances. The processing power of multiple application blades can also be grouped to create a "virtual application processor" that enhances performance and redundancy.

This virtual application processor scales linearly; thus two blades acting as one virtual application processor have twice the computing performance as one blade. Moreover, traffic flows are balanced between application blades within a virtual application processor to deliver maximum computing efficiency. These blades also are hot-swappable and quickly adopt the configuration of any failed blade within the virtual application processor. Application processors have priority failover capability, can be configured to back up each other and can switch applications based on enterprise priorities.

The final processing capability in integrated security platforms is carried out by the control processing blade, which constantly manages and monitors every one of the platform's elements for failures and performs the appropriate system-level self-healing functions for ultra-high reliability.

Integrated security platforms deliver the industry's most advanced high-availability features with no single point of failure. The platform architecture provides multiple redundant data paths, dual control path switch fabrics, multiple power supplies and feeds, and redundant network and control processing modules.

The sophisticated, open operating-system software running these platforms offers the ability to logically sequence flows from one security application to another. This lets managers get the benefits of security "service chaining" (such as traffic flows to firewall first and then an IPS device) without having to build the appliance, switching and load balancing infrastructure to enable it; instead, it's all done via software.

Moreover, it's done in a way that lets managers choose best-in-class third-party security applications that facilitate implementation of their companies' security policies. Additionally, the security platform operating system provides the virtualization capability that lets security applications have no physical representation on applications blades. Instead, the operating system creates an abstraction that enables applications to run on a virtual application processor that is a collection of blades.

Conclusion

As IT management looks to cut costs and ease the management burden of increasingly complex networks while complying with stringent security policies, it will need to consider the integrated security platforms. These platforms deliver unprecedented levels of network consolidation and scalability; are simple to install, integrate and operate; and deliver on virtualization's promise of improved infrastructure and asset utilization.

Together, the consolidation, virtualization and service chaining capabilities of these platforms reduce appliance sprawl; efficiently utilize computing and network resources; and deliver high availability, reliability and uncompromising performance.

Freeze is the chief marketing officer for Crossbeam Systems. He can be contacted at jfreeze@crossbeamsys.com.

GEARHEAD

Mark Gibbs

Jott outta beta, and SliTaz is the boss

A few weeks ago I wrote about Jott, a Web service that translates speech via cell phones to text lists, e-mail and reminders (each translated message is called a "jott"). Jott has done something rare among online start-ups — it has exited beta and announced it is in production!

Allow me to digress. I wonder how many companies have graduated from beta status to full release over the last year. I really should start keeping a scorecard.

Anyway, along with its graduation from beta, Jott has announced pricing; it's pretty good. There are three service tiers: Jott Basic (free), Jott ($3.95 per month) and Jott Pro ($12.95 per month).

All levels allow for unlimited voice-to-text and reminders and access to all Jott RSS feeds. Jott Basic and Jott provide 15 seconds of recording per jott, while Jott Pro allows for as much as 30 seconds. All but Jott Basic provide hands-free e-mail and text messaging, and each level provides access to different applications for interacting with Jott (all support the iPhone; only the paid subscription supports Outlook, and only Jott Pro supports BlackBerries).

I've been getting interesting input recently. Reader Ben Scott (Atlanta) recommended a Linux distro: SliTaz. He wrote, "I know you love cool items. Here is one of the smallest, fastest X-capable nix out there. It is a multilanguage project — French and English. It is wafer-thin and way cool. Great for older hardware or [kiosks]." Thanks, Ben.

Despite its horrible name, SliTaz (an acronym for "Simple Light Incredible Temporary Autonomous Zone" — yechhh) isn't just cool, it's way cool. The SliTaz site describes the project as "a free micro GNU/Linux distro using BusyBox, a Linux kernel and GNU free software." The project staff says that the goal of SliTaz was to get a distro that could run completely in memory and supported hard-disk installation.

SliTaz boots with Syslinux, a lightweight bootloader, and "provides more than 200 Linux commands [including] the LightTPD Web server, SQLite database, rescue tools, [Internet Relay Chat] client, SSH client/server powered by Dropbear, X window system, JWM (Joe's Window Manager), gFTP, Geany [integrated development environment], Mozilla Firefox, AlsaPlayer, GParted, a sound-file editor and much more." SliTaz also comes with a hard-disk installer, a CD image-remastering program and a utility that installs SliTaz onto a USB drive. All this is designed to fit in an ISO image of less than 30MB that expands to around 80MB on installation!

I installed SliTaz from the ISO in a virtual machine under VMware Workstation 6.0.4; and, wow, talk about fast and small. SliTaz will easily run in 128MB of RAM and can be shoehorned into running in as little as 16MB! And it boots really fast.

Now, try this. Go to Pendrivelinux.com and download the QEMU PC hardware-emulator installer. This executable is actually a self-extracting archive. When you run it, you just need to tell the installer where to unzip the contents. The result will be a folder named QPU804.

Copy everything from this folder to your USB drive, then add to that the SliTaz ISO image. Voilà! You now have a portable, virtualized SliTaz installation that can run alongside Windows in a concurrent virtual-machine session. In fact, the QEMU setup can execute any ISO you put on the drive.

SliTaz is a great solution for a portable operating system, a tremendous way to extend the life of older machines and a terrific tool set for recovering sick systems. It is, as my son and his friends would say, "the boss."

Gibbs thinks he's the boss in Ventura, Calif. Tell him if you know otherwise at gearhead@gibbs.com.

COOLTOOLS

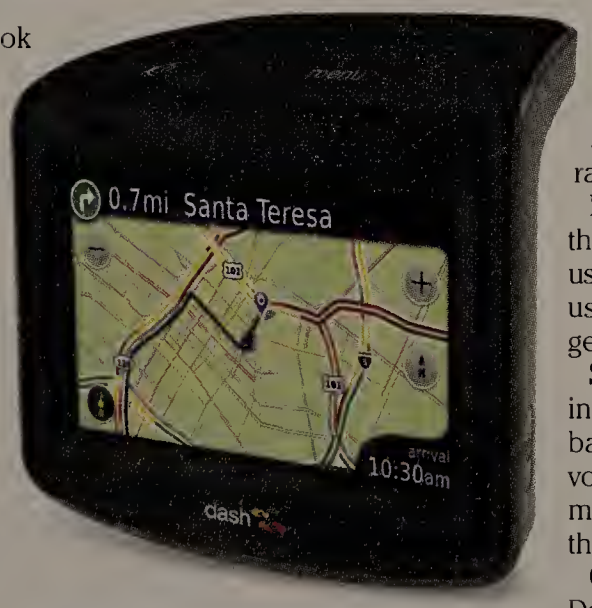
Keith Shaw

Gadgets get Wi-Fi right (Part 2)

We're continuing our look at some devices that not only connect to Wi-Fi in unique ways but also use the connection to enhance their offerings.

The scoop: Dash Express, by Dash Navigation, about $300.

What it is: An in-car GPS navigation device, the Dash Express offers features comparable to those of other stand-alone systems, including turn-by-turn driving directions. The Dash Express, however, also includes a wide-area wireless connection (through arrangements with several carriers; to use the WAN, users must pay for monthly service) and Wi-Fi, which creates a two-way connection that other GPS devices don't have. That allows the Dash unit to receive map and software updates more quickly than can other devices, which rely on the user's connecting the GPS unit to a PC. In addition, the connection lets Dash provide better traffic updates — the device connects to Dash servers, and they can relay traffic conditions to the individual unit much faster than a PC. In addition, the Dash traffic network relies on information from other Dash users, so if someone a few miles ahead of you is in a traffic jam, that data can be sent down to you and you can re-route.



The Dash Express GPS has WAN and Wi-Fi connectivity

Why it's cool: The easy-to-configure Wi-Fi connection lets the device receive updates even faster, so software can download while your car is parked in the driveway. Adding new addresses to the system is even cooler, Dash provides an Outlook and Web browser plug-in that lets you highlight any address, then send that address directly to the car. Through the company's myDash portal, you can create customized searches that get sent to the car. For example, I sent to my device an application that showed me where the closest Chick-Fil-A restaurants were, based on my current location.

It's these "DashApps" that make the Dash more than just a GPS device. The Dash is a platform that uses two-way Internet connectivity to bring more useful features to the device than just the ability to get you from Point A to Point B.

Some caveats: While the new features excelled in their ability to add more to the GPS device, the basics of the GPS device were a little lacking. The voice that gives directions, in particular, was much more robotic and less pleasant to listen to than the voices of other systems I've tested.

One final note: During testing, thieves stole the Dash unit from my car. While the two-way connection could have been used to help locate the device, Dash officials say they don't do this because of privacy issues (all traffic data is collected anonymously). Perhaps future GPS devices that use two-way communications would let users opt-in to a tracking feature, so if their device gets stolen, police could track it down and make an arrest. Fortunately, Dash could use the connection and "brick" the device, that is, wipe the address data from the unit and disable the GPS. At least those who stole the unit won't be able to use it now.

Grade: ★★★★ (out of five)

Shaw can be reached at kshaw@nww.com. New Cool Tools videos every Thursday and Twisted Pair podcast every Friday at www.networkworld.com.

ECO FRIENDLY. CFO FRIENDLY.

Every business process and service leaves a measurable carbon footprint. So how do you increase control and visibility of those processes while limiting their carbon impact? With IBM's Smart SOA™ approach. It helps you optimize resources and break inefficient, siloed applications into reusable services–giving you greater agility across business processes and IT infrastructures. Companies like Citigroup have reduced application-processing time from two weeks to two days. Process efficiency goes up. Energy costs go down. A greener world starts with greener business. Greener business starts with IBM.

SYSTEMS. SOFTWARE. SERVICES. FOR A GREENER WORLD.

Benchmark your IT energy efficiency at **ibm.com**/green/soa

IBM

Algorithm
continued from page 1

phorically, we tell everyone that information in networking."

To deal with that problem, large networks are manually engineered to create areas —conceptually isolated groups of routers—that limit the number of routers any flood reaches. Routers still receive floods, but only from the routers within their areas.

XL can eliminate manual configuration of areas, Savage says. Instead, each router automatically figures out to which other routers it should pass along updates so all destinations can still be reached and loops don't occur that effectively black-hole packets.

"I think it makes some sense," says Zeus Kerravala, an analyst with the Yankee Group. Setting up route areas is a challenging task that requires figuring out the best logical division of the entire network into the smaller network areas, he says.

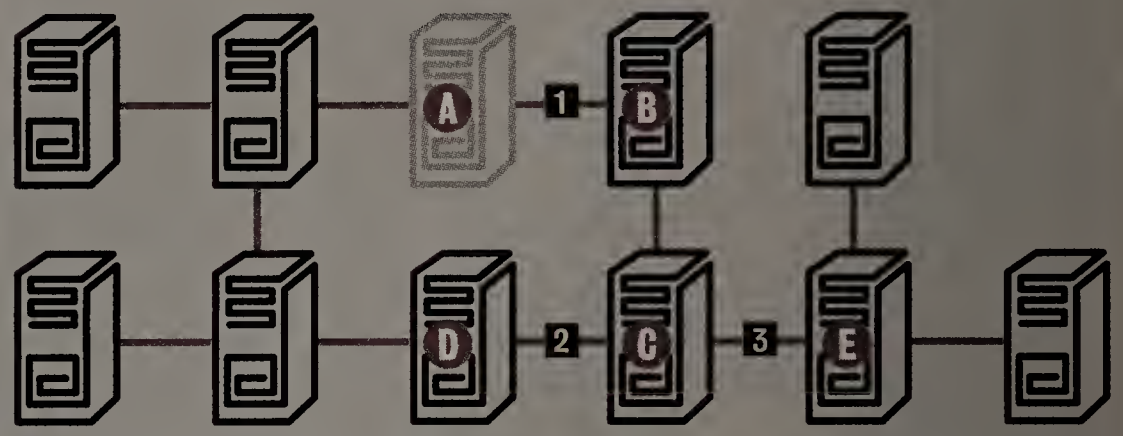
"Part of the magic of it is to figure out what goes into each routed segment. Where do you put the borders?" Kerravala says. "You could put a branch in one area, the floor of a building, a department, all of a class of devices like IP phones."

The XL algorithm selectively withholds some updates, creating a trade-off. If a new link becomes available after a failure, the algorithm decides whether forwarding the information beyond a router's immediate neighbors will improve enough paths by a great enough percentage to warrant passing it along.

If not, the router suppresses the update by not forwarding it. The general result is that updates are sent only to the immediate areas where topology has changed, making the distribution less disruptive.

Selective suppression

The Approximate Link State (XL) algorithm selectively suppresses updates about router status in open shortest path first (OSPF) and intermediate system to intermediate system (IS-IS) networks to reduce update floods and make the networks operate more efficiently.



1 Today, if Router A fails, a topology update floods the network. With XL, when Router A fails, Router B is aware of it and sends an update to Router C.

2 Router C would update Router D because D needs to know a path it might use is blocked by the failure.

3 Router C would not update Router E because E's knowing of the outage won't affect its options.

Each router with XL would maintain data about its neighbors' shortest path tree — how its neighbor views the network — and use that to determine whether to forward path updates. That would increase the amount of data routers keep, but Savage says his team thinks that the amount of additional data would be very small.

That benefit is balanced against the fact that employing the algorithm means each router has less precise information about the actual state of the network.

In big networks, overall performance is limited by the slowest router. "That's the router you're waiting for so the new network configuration can converge," Savage says.

Because buying cycles for routers may vary within very large networks, older, slower routers can have a big impact, Savage says. "Scalability may be limited by stuff you bought 10 years ago that you can't afford to replace yet," he says.

Kerravala says incomplete knowledge of network topology and all possible paths is not necessarily bad. "If you operate at light speed like packets do, you could take the less-than-optimal path and it won't make much difference," he says.

But Kerravala says he'll reserve judgment until the algorithm is demonstrated in a real network. "I'm skeptical. I'd want to see it work and see how it updates routes," he says.

The algorithm is compatible with Intermediate System-to-Intermediate System and Open Shortest Path First link-state routing, Savage says, which means the software upgrade containing the algorithm could be deployed incrementally and would interoperate with existing router protocols. The goal in these networks would be to optimize paths based on a given parameter, such as latency or bandwidth, he says.

Getting XL into practical use would require router makers to incorporate it in their software, Savage says. "It would need to be embraced by vendors. If Cisco picked it up it would have impact," he says.

Savage already has briefed Cisco, which helped fund his research through the Center for Network Systems. Cisco wouldn't say how interested it is in implementing the algorithm. ■

DTN
continued from page 12

envelope that has blank spaces in the address.

As the packet makes its way through the DTN, this additional information gets filled in. Eventually, the destination IP address binding takes place, and the transmission completes as the packet is forwarded.

The three-week prototype field test at Fort A.P. Hill last fall involved 20 nodes, mainly laptop-like embedded computers, running the DTN protocol with GPS and Wi-Fi connectivity (see photograph, page 12). Most of the nodes were stationary, representing soldiers at a simulated forward operations base, trying to communicate with a headquarters site about 2 kilometers away. The scenario simulated sending back tactical information (such as ammunition levels and enemy sightings) so that headquarters staff could form an accurate, timely view of the forward base's status.

Several of the nodes were mounted in SUVs which drove a periodic circuit between the two locations. The vehicles were simulating airborne drones that could circle over the locations with a wireless link to the ground nodes.

Alongside the DTN was a standard IP network; each packet was transmitted over both networks to compare performance.

The difference was dramatic, according to Small. The DTN network was able to successfully transmit five times the amount of status information as the IP network. (A summary of the results is online.)

The nodes representing soldiers were able to queue their transmissions, then hand them off to nodes mounted on the moving trucks. When the truck nodes came in range of a headquarters node, the transmission was successfully completed.

Now it's time to up the ante.

"This is where it gets interesting," Small says. "We're not going to deploy this with 100,000 troops [in this phase], but we will demonstrate that it can work with hundreds of nodes and that it can work for weeks at a time." ■

There is a great way to battle the painful scarcity of resources in tough times...

Be Extreme.

Your business is demanding more, competition got meaner and your boss just informed you that you have less resources.

There's one company that has geared its networks solution to meet the needs of today's harsh business reality...

By focusing on delivering insight and control from the core to the edge, Extreme Networks® provides a robust solution that can help any organization deal with the problems that are rampant today —and expected tomorrow.

When times are tough. Be Extreme.

networks

www.extremenetworks.com

King
continued from page 1

— Justin King. The best part? He's a college dropout.

King, 29, attended the University of Texas but was thoroughly unimpressed by its computer science department. In one class, he remembers, there were far more students than computers, and many of them were broken. He left after two years.

"I said, you're kidding me — one of the biggest schools in the nation can't get enough computers to use? On top of that, it was 1999. People were getting $50 million to teach swimming lessons online," King says.

There's some exaggeration there, but many people have succeeded without a college degree. After all, Bill Gates skipped out of Harvard in 1976.

King had been working in a computer store since high school and figured he could at least get a job doing desktop support. He did just that at Sysco, the food company with headquarters in Houston. King was hired away nine months later by Read Montague, a neuroscience professor who was starting a software company called Quaadros.

The company failed, but King followed Montague to Baylor College in 2001. By 2003, Montague had opened the HNL, and King's role has only expanded each year.

Despite being a professor, Montague didn't seem to mind King's lack of a college degree.

"I just sort of work like a maniac," King says. "That's right up Read's alley. He just puts everyone to shame. He works all the time."

King is the sole system administrator for the HNL and the Computational Psychiatry Unit. He and a few software programmers at the lab have immersed themselves not only in computer technology but also in the science of fMRI experiments, says HNL director Montague. "It's a very rare system administrator . . . who understands the nature of the experiments we're doing," he says. "I always included them as much as possible. There's not a cultural gap between the scientists and the computer guys."

It's common for King and the programmers to ask probing questions — Do you really want to store the data that way? What method should be used to anonymize personal information? The intertwining of scientists and techies at HNL has helped keep the lab nimble and lean, Montague says.

The list of technologies King manages includes 102TB of Pillar Data Systems storage; 15TB of IBM DS4500 storage; a Dell tape library; four Fibre Channel QLogic SANbox 5600 switches; about 30 x86 servers, mostly Dell; VMware virtualization; a PostgreSQL database for storing experimental data; and two Western Scientific high-performance computing clusters with 50 nodes each.

There's also a Cisco Catalyst 6509 switch, but luckily for King, the Baylor College of Medicine has a network group, so he doesn't have to manage that piece of technology. King manages Microsoft Exchange e-mail for the HNL and Computational Psychiatry Unit, but the college network team manages spam-filtering and antivirus needs, taking much of the burden off King.

King singles out a few products that have helped him simplify his job, including Pillar's storage and VMware's server virtualization. Managing all virtual servers from one interface, and such advanced features as live migration and high availability are the key benefits of using VMware, he says.

Virtualization raises the threat of having a single point of failure for many workloads, though, King notes. With VMware, "you've got everything you need in one space," he says. "At the same time, if one server goes down, you're going to lose a bunch of [workloads]."

A lot of VMware customers suffered from such a problem recently, when a bug in a software update prevented virtual machines from booting up. King avoided the problem by not upgrading to the new software. "It always makes sense to wait at least two weeks to install the newest version," he says.

King recently upgraded most of his storage to Pillar from IBM System Storage DS4500, an older product that IBM is no longer selling.

Pillar storage drives up disk utilization rates by providing extra RAID controllers. It's also billed as "application-aware," meaning it knows the requirements of specific applications and can reassign resources based on changing priorities.

For example, it's easy to move data from high-performance disk drives to the archive layer, King says. Pillar is able to squeeze lots of performance out of standard Serial Advanced Technology Attachment drives that are not as expensive as Fibre Channel hardware, he says.

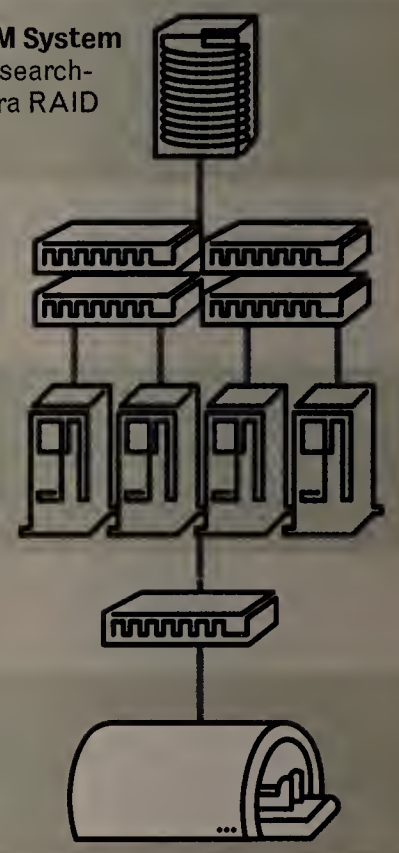
"You can selectively decide how fast or slow you want your storage to be," King says. "That's extremely important. We have lots of stuff we don't need on really fast-spinning disks, but we need it on near-line availability."

When you're the Lone Ranger in a one-man IT department, "just finding enough time to stay focused on one thing" is the biggest challenge, King says. "I try to offer as much as I possibly can. We're not an Amazon. If we go down for an hour, we're not losing money by the second. It's an inconvenience, but it's not the end of the world."

King provides services to about a half-dozen faculty members, and a few dozen doctoral students and researchers. Because of their high level of technical expertise, King does not have to deal with some of the minor problems that monopolize the time of a typical system administrator. "The people here . . . are all pretty savvy," he says. "I don't have to deal with [users saying] 'I can't figure out how to get my printer installed,' or 'the sound isn't working.' That makes it possible to get other stuff done." ■

Brain scanning network

The Human Neuroimaging Laboratory at Baylor College of Medicine performs cutting-edge research on the human brain with functional magnetic resonance imaging (fMRI) machines. Here's a look at the network that supports this research.



102TB of Pillar Data Systems storage and 15TB of IBM System Storage DS4500: HNL stores brain scans and other research-related data primarily on Pillar storage, which uses extra RAID controllers to increase disk utilization rates.

Four Fibre Channel switches: HNL uses QLogic SANbox 5600 switches to connect servers to the Pillar and IBM storage boxes.

Four Dell PowerEdge 2950 servers: Using VMware's hypervisor, HNL carves up each physical box into six or seven virtual servers.

1Gbps Ethernet connection (Cisco Catalyst 6509 switch)

Five fMRI machines: fMRI is a type of specialized MRI scanner that HNL uses for so-called "hyperscanning," a method in which human subjects can interact with each other while their brains are being scanned.

Virtualization
continued from page 14

virtualization vendor DataCore Software. In addition, storage virtualization by itself can provide thin provisioning, as well as the simplified management structure that comes with pooling storage devices and managing them from a central console.

On the flip side, virtualizing servers without virtualizing storage is problematic. It doesn't make sense to have multiple virtual servers on a physical machine that aren't able to share data, says Enterprise Strategy Group (ESG) analyst Mark Peters.

"You can gain tremendous benefits from storage virtualization, even without server virtualization. It's harder the other way around," Peters says.

Virtualization in heterogeneous environment

Given that virtualization is designed to combine multiple storage devices, it's not immediately obvious why it makes sense to virtualize your storage if it all comes from a single vendor.

There are compelling reasons, however, says storage analyst Arun Taneja. "A lot of people think storage virtualization has a prerequisite of heterogeneity, that it only comes into play when storage from three companies is involved," he says. "I say, forget it, it has value even if you are stuck with a single vendor."

The storage market is more proprietary than just about any other IT space, and this creates problems even if you have just one storage vendor, Taneja says.

Say you're an EMC customer with two Symmetrix DMX boxes, and "you just want to combine the power of those two boxes and manage it as one," Taneja says. "[Without storage virtualization] you can't do it. That's how ridiculous the world of storage is."

This "ridiculous" level of exclusivity in the storage market takes on a new dimension when you're managing storage from multiple vendors. That leads to the next issue.

Choosing a vendor

Corporations' primary procurement dilemma is whether to purchase storage-virtualization products from a storage vendor or a third party. If your true objective is flexibility, especially if you're planning major data migrations, a third party is the way to go, Taneja says. Such vendors as FalconStor Software and DataCore are capable of managing storage from multiple vendors simultaneously, whether they are EMC, HP, IBM or Hitachi Data Systems.

Truly Nolen chose a third party, DataCore, even though the company uses only HP storage. The company evaluated virtualization vendors including HP, EMC and Dell EqualLogic, but settled on DataCore because it was less expensive and offers the flexibility of using whichever hardware vendor it likes, Tokkaris says.

The major storage vendors promise to be able to manage a heterogeneous environment. Examples include IBM's SAN Volume Controller, NetApp's V-Series and EMC's Invista. As a general rule, though, vendors support their own storage products first and others second, if at all.

"They always support their own systems first," Taneja says. "That means EMC's Invista supports DMXs and Clariions, and they might support some other foreign devices; but the support for foreign devices always lags, and support for foreign devices is always incomplete. The whole idea is don't support your enemies' boxes."

Peters predicts that as storage virtualization becomes more common, market pressure will force vendors to do a better job supporting their rivals' technology.

If you get storage from just one vendor, however, the solution is simple.

"I say to the IT people I talk to, if you're a Hitachi customer and you like working with them and you're stuck with them, just buy their virtualization to make life more manageable within Hitachi products," Taneja says.

Sifting through the hype

By most accounts, storage virtualization is a no-brainer. Who wouldn't want to manage multiple storage devices from a single console, and gain data mobility that makes disaster recovery a breeze?

Storage virtualization will be about as common as automatic transmissions in automobiles within a couple of years, ESG's Peters thinks. "There are certain technologies that are just smarter and better than people doing it manually," he says.

Even storage virtualization vendors, however, can admit there are instances when the technology isn't a fit. Storage virtualization is not for everyone, says Kyle Fitze, an HP director of storage marketing. Virtualization actually adds a layer of complexity, he argues. You have to manage the individual storage devices, as well as the virtualization layer, he notes. Despite virtualization, you still have to perform such tasks as reconfiguring devices after adding physical disks to storage arrays, he adds.

As a general rule of thumb, the more complicated your storage environment, the more benefit virtualization brings.

"There's a complexity/benefit trade-off," Fitze says. "If their current environment is difficult to manage and complex . . . adding a virtualization layer can simplify that complexity. If it's a small, efficiently managed environment without data-protection challenges, then virtualization just for virtualization's sake is probably not a good idea." ■

Spectrum
continued from page 16

geo-location database to help provide protection for existing broadcast signals.
cast signals. Essentially, geo-location tracks mobile devices by locating them through their specific IP address, media-access-control address, radio-frequency identification or other location-based information. From there, the database looks at the licensed spectrums being used within a given area, and ranks the remaining available spectrums by their strength and closeness to a spectrum already in use. Finally, the database automatically selects the optimal white-space spectrum for the device based on its location, then switches the device to a different spectrum once it moves to a different location.

Motorola concedes that these geo-location capabilities might not assuage the NAB, which has stated clearly that it wants no mobile devices operating on unlicensed television spectrum. However, Motorola is optimistic that the FCC soon will allow its devices to operate on the spectrum and will find that geo-location practically eliminates the risk of interference.

Although no one knows for certain how the FCC will rule, both sides have been gearing up their public relations machines to make their case. Device manufacturers Motorola and Philips have gone to the press to stoke expectations for how well their products performed in the FCC tests, while Verizon has tried to temper public expectations by indicating that more work would have to be done before it could come out in favor of white-space use.

The NAB, for its part, has created a campaign called "Interference Zones" that urges people to tell Congress to ban the use of unlicensed devices on white spaces. The association is illustrating this point by displaying a cartoon of a sinister-looking cell phone named Wally that gleefully interferes with Direct TV signals. Google, which so far has been one of the most vocal proponents of white-space use, launched its Free the Airwaves campaign this week to explain the white-space debate to the public in layman's terms. "You don't need to be a telecommunications expert to understand that freeing the 'white spaces' has the potential to transform wireless Internet as we know it," says Minnie Ingersoll, the product manager for Google's Alternative Access Team. "There's no doubt that if these airwaves are opened up to unlicensed use, more people will be using the Internet." ■

How to simplify data center networks

Researchers plan to use fewer 10G Ethernet switches, more commodity devices

BY DENISE DUBIE

Buying faster switches might not be the only way to amp up performance across data center networks, according to researchers at the University of California, San Diego, who this week proposed a network architecture that would let commodity Ethernet switches deliver better performance at a lower cost than their 10 Gigabit Ethernet counterparts can.

Amin Vahdat, computer science professor at UC San Diego, presented research findings at SIGCOMM 2008 in Seattle that laid out how the principles behind clustered computing could be applied to network architecture to improve scalability and performance at reduced costs.

"Data centers are not being built on high-end components, but on the networking side we still rely on high-end, leading-edge technology," says Vahdat, one of three authors behind a paper titled "A Scalable, Commodity Data Center Network Architecture."

Instead of investing in specialty gear, such as 10 Gigabit (10G) Ethernet switches and routers, and using a standard three-tier architecture, Vahdat says companies could use commodity Ethernet switches at a much lower cost to achieve the same performance (see diagram). Anecdotally, a 20,000-node network using pricey switches could cost as much as $28 million to construct; with commodity gear, the same network would ring up at closer to $4 million, he says.

"These are optimistic numbers, but taking advantage of the commodity side of things will be incredibly disruptive to computing and technology," Vahdat says.

The findings come at a time when the emergence of high-end data centers supporting some 100,000 nodes is breaking the old model for networks and causing enterprise IT managers to look for options while standards around 40G Ethernet are still several months away and 100G Ethernet, years off.

"The low cost and flexibility of Ethernet are the drivers behind this trend, and UCSD's research is a good example of just how far this idea can go," says Phil Hochmuth, senior analyst at Yankee Group.

The price argument might not be compelling today because the difference is minimal, but when 40G Ethernet becomes a reality "the price per port will be huge and the port density will be tiny," Vahdat says.

The team of researchers began work on solving the problem of high-cost, poor-performing, high-end networks about a year ago. In talking with the team, several companies revealed complaints about costly, complex data centers that lacked adequate bandwidth. The problem has been exacerbated in the past three years, Vahdat says, as more companies build out big data centers that don't deliver the performance promised and require substantial investments. While the cost of using today's technology cannot be considered the main driver for adopting this proposed architecture, price will become an issue in the near term.

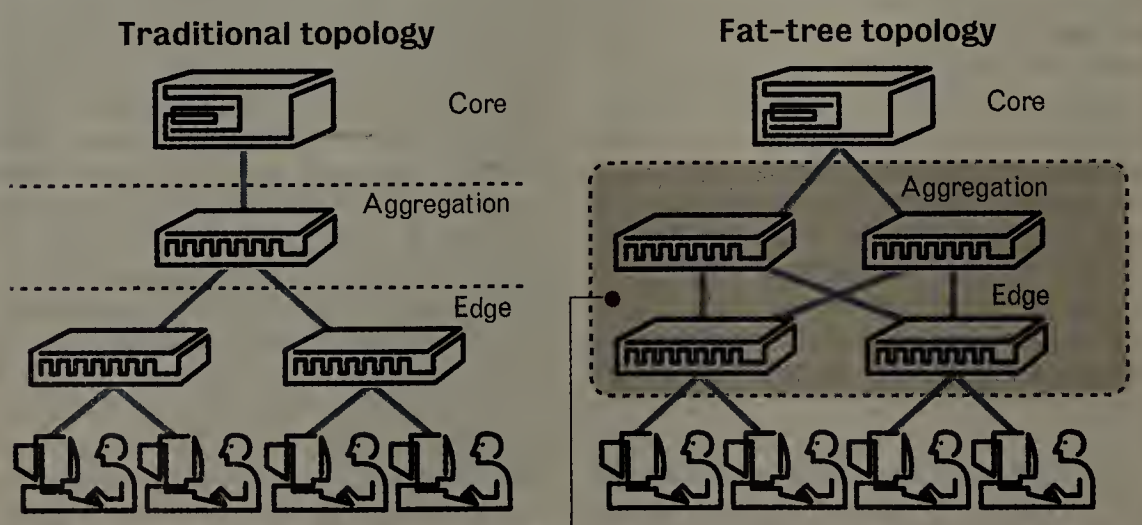
"Today is the least compelling time to be thinking in terms of price per port, but once you push 10 Gigabit Ethernet to the edge, the existing designs do not work," Vahdat explains. "If you want to push 10 Gig to the servers in a large cluster, you won't have any option."

Using a fat-tree topology, Vahdat and his fellow researchers designed a way to interconnect Ethernet switches that would make all switching elements identical. That would make it possible to "leverage cheap commodity parts for all of the switches in the communication architecture," he says. The fat-tree topology deviates from the three-tier core, aggregation and edge layout of traditional networks in that it doesn't rely on aggregating to higher-speed links or on specialized hardware when moving up the tree. To enable the use of homogeneous gear, fat-tree-topology networks rely on protocols taking advantage of all the paths available in a network, he says. "We believe you don't have to modify the chips, but that it could be done with software and with relatively small modifications," he adds.

The researchers propose that using two-level routing tables and flow-classification techniques, among other methods, would enable the switches to route traffic across the fat-tree diagram without creating bandwidth bottlenecks. Yet Vahdat says his teams still must resolve two issues. The first is exactly how many modifications, with software or otherwise, network managers would need to make to enable the switches to route traffic in a way that takes advantage of the fat-tree topology. The second is around cabling. Right now, networks using high-end 10G Ethernet switches would have fewer cables connected to them than a fat-tree network, which would require 100 separate cables for 100 low-speed links. ■

Getting more network for less cost

Researchers argue that network designers can cut costs and scale bandwidth better by building large-scale communications networks from many small Ethernet commodity switches.



A traditional three-tiered network design with core, aggregation and edge layers can require expensive 10 GigE switches to prevent bottlenecks along communications paths — and bandwidth can still be limited by the bandwidth available at the core layer.

By connecting commodity Ethernet switches in a fat-tree topology, researchers say network designers can deliver full bandwidth at a lower cost without changing end hosts and remaining backward-compatible with Ethernet and IP.

The fat-tree design requires network designers to spread outgoing traffic from any given "pod," which contain two layers of switches, evenly among the core switches by using two-level routing tables to assign the class of traffic and priorities.

Georgia cyberwar overblown

RISK & REWARD
Andreas Antonopoulos

Last week Russian tanks rolled into South Ossetia while Russian bombers were taking out critical communications infrastructure. But even before the first tank crossed over the disputed borders, another war was brewing in cyberspace.

Armies of hackers started attacking critical cyberinfrastructure in Georgia. A counter-offense of Georgia hackers fought back to control major routing exchanges. Then a disturbing escalation: Georgian hackers were able to take control of Russian strategic launch capabilities. The Russian defense artificial intelligence was defeated and forced to begin the launch sequence of intercontinental ballistic missiles toward strategic targets everywhere. At the last moment, a Russian teenager with top-secret network access gained over an open Wi-Fi in his high-school network was able to persuade the Russian AI to back off by showing it the futility of war through a game of tic-tac-toe. Oh, wait a second — that's a movie plot! None of this actually happened

For all the reports of cyberwar between opposing armies of cyberwarriors, you'd think that a big part of the war was being fought in cyberspace. A few instances of denial-of-service (DoS) attacks were being amplified by the media into a cyberwar. I got e-mails and calls from journalists asking me about the implications of cyberwarfare, the vulnerability of U.S. infrastructure and the potential for electronic Pearl Harbor. What a load of [redacted:TOPSECRET]!

There are two problems with the theory of cyberwarfare in the Caucasus. The first is that all of the reported attacks consisted of DoS attacks against Web sites, mostly connected with government functions. There were no reports of attacks against critical infrastructure, electronic jamming of stock exchanges, Supervisory Control and Data Acquisition (SCADA)-hack explosions in substations or anything like that. This was not a battalion of elite army-trained hackers from the Russian Southern Command of Cyber Warfare (Unit 1337). In all likelihood it was groups of run-of-the-mill script kiddies with control of a botnet, stroking their egos with the higher cause of injured nationalism. More "Boris waz 'ere" than "All your SCADA are belong to us."

The second problem is that in order for cyberwarfare to be successful there needs to be a lot of cyberinfrastructure to attack. Georgia and Russia are both making tremendous strides in development of Internet infrastructure, but let's not kid ourselves. These are not info-economies running all their banking in virtual reality on top of Second Life. The targets that were attacked were mostly government brochure sites. Even in the United States, where a lot of government services are delivered over the Web, a sustained DoS attack against government Web sites would not really affect the economy. It would simply make the online experience more like the real-life DMV experience, and we somehow survived that fine up to 1995.

A single picture of a Russian tank on the front page of a newspaper can probably cause investor panic and have a bigger economic impact than all of the DoS attacks. News continued to get out of Georgia without much interruption. Instant messaging, which was a lifeline for many with family in the war zone, was mostly unaffected. You can't have cyberwar when such a small part of the economy depends on cyber-anything.

Antonopoulos is a senior vice president and founding partner at Nemertes Research, an independent technology research firm. He can be reached at andreas@nemertes.com.

20 ways to survive a layoff

Tips for getting back on your feet and into the IT job market from someone who's been there and back

BY RON NUTTER

Editor's note: On Feb. 20, IT manager and *Network World* columnist Ron Nutter was called into his boss's office and told he was being let go — that day. Once the initial shock wore off, Nutter launched an aggressive search for employment in the Kansas City area. Over the next 76 days, Nutter applied for 85 jobs, and had 16 interviews before landing a new position. He chronicled the job search in a daily blog. Now that he has had some time to reflect on the experience, Nutter offers these 20 tips for surviving a layoff.

1. As you're being laid off, take notes

This can be difficult to do, because losing a job can be a very emotional experience. Nevertheless, while everything is still fresh in your mind, write down all the details you can remember. For example, I was told I would be paid for the full two-week pay period plus my remaining vacation and sick time. When my last check arrived, there were discrepancies. Having written notes helped me when I went back and reminded my former boss and the Human Resources folks of their commitment.

2. Take some time for yourself

Take a few days for yourself. A traumatic event has just happened to you, and you need to get over the initial shock before you jump into the fray to search for a new job.

3. Review the paperwork from the company that laid you off

You need to attend to several important things rather quickly. One is finding out how to file for unemployment. Another is determining how long your company-paid health insurance will be in force before you have to consider paying for COBRA insurance.

4. Update your résumé

This is something we should all do, but it doesn't always get the attention it should. I was told a long time ago that a résumé should be more than two pages with a maximum of three bullet points per employer. That may work in some cases, but not in all.

I have found that some recruiters and employers use software that counts how many times a particular word, such as Cisco, or a word describing a certain type of experience appears in a résumé. I can attest this is happening to a degree. During a previous job search, a recruiter had me rewrite my résumé just about completely to list specifically all the different types of Cisco hardware I had worked with. It was interesting to note how the callbacks increased after I did that.

You may find it necessary to keep more than one type of résumé, each tailored to the type of job you are pursuing.

5. Get a handle on monthly bills

Although I had a little money put by for a rainy day, I went through my recurring bills to see if there was any room for saving more. I found that by shopping around for automobile and homeowners insurance, I could keep the same coverage and reduce both bills. I had been thinking about doing this for a variety of reasons, but being unemployed helped push it to the top of the list.

6. Cut food costs

If you live by yourself, this will be easier to do. If you have a family, everyone will need to sit down and understand they will all have to help out until you can get another job. Not that I ate out a lot while I had a job, but I did eat out

See 20 tips, page 40

ILLUSTRATIONS BY NOAH Z. JONES

continued from page 38

sometimes. When I was laid off, that stopped. The one treat I allowed myself each week was to stop by a local pizza place that made the pizza but you took it home to cook in your own oven. I made sure to take a coupon with me each week to take a couple dollars off the cost of the pizza.

I also shopped at my local Costco and bought the food I needed in bulk so I had to shop only once a month. Having a freezer make this easier to do. For example, I would buy a 3 to 5 pound tray of fish, which I would portion out into individual meals using a vacuum-sealing machine. Another suggestion: Buy several gallons of milk at one time and put them in the freezer. Pull one gallon out at a time, and it will still be good. I have been doing this for more than a year and have yet to notice a difference in the taste.

7. Look at health insurance options

Your company-supplied health insurance will come to an end. My former employer's health insurance ended a few days after I was separated from the company. Worse yet, I wasn't due to receive COBRA information until after my company health insurance had lapsed. Because my previous employer also had been processing my claims, I wasn't comfortable with it having any further access to my medical records. Doing a little research on the Internet, I found a single health-insurance policy from Blue Cross Blue Shield for half the price of the COBRA policy my former employer was going to offer me and with better coverage.

8. Check with your financial adviser

I have worked with an excellent person at Smith Barney for several years. Because I knew I might need to access my credit line to help pay bills, I wanted to give him a heads-up on my situation so he could be looking at other options to keep the use of the credit line as a last resort.

Tip #2: Take some time for yourself

9. File for your income-tax return refund

Another thing to consider, depending on the time of year you are laid off, is to use your income-tax return as a one source of money for paying bills. I haven't been a fan of paying for electronic filing, but this year I did spend the money so I would get the tax refund a little sooner.

10. File for unemployment compensation

This is something I delayed doing a little bit — partially because of pride and partially because I didn't anticipate job-hunting to take more

Tip #4: Update your résumé

than three months. As someone pointed out to me, you have earned this money and you should take advantage of it. In my case, filing was complicated because I had moved from another state in the previous 18 months. The unemployment folks go back that far in figuring out where someone should file for unemployment. That potentially had me talking with three states' unemployment departments. I spent several days on the phone with the two states that would be involved in my situation. As painful as it may be to deal with this part of your unemployment, the sooner you start, the sooner the money will come in in to help pay the bills until you get another job.

11. Check the job boards

During my job search, I looked at CareerBuilder, Craigslist, Dice and Monster. I found no job leads from Monster in my career area. Several of the HR folks I talked to during the process told me they used Monster very little, in part because of the higher fees the site charged for posting a job compared with other job boards, and in part because of the generally poorer quality of applications they received from Monster. I found some new job-postings on Dice, but with a significant number of jobs cross-posted on other boards, I didn't find Dice to be a significant source of potential job leads. One source I wouldn't have thought to check was Craigslist. More than one recruiter told me he had good results from posting jobs on Craigslist. Set aside time each day to do this.

12. Make the job boards work for you

Dice has a feature where you can make your résumé searchable by companies and recruiters with a position to fill. I got some calls from that. CareerBuilder recently followed suit. Dice lets companies and recruiters repost a job every day so that it looks new, but in some cases this makes identifying the jobs a little harder. Turn the tables in your favor by making changes to your résumé periodically so that when it is searched it will show up as new or changed; this could get you looked at by a company or recruiter that might have passed you by the day before.

13. Prepare for the interview

One thing I have done when preparing for an interview is to research the company, as well as the companies, sectors and industries it serves. If it is a publicly listed company, read some of its press releases from the the past quarter or two to see any changes that have occurred and new directions it is heading in. The responses I received from several companies indicate it makes a good impression that you are interested in finding out about the company before an interview. It may seem like a small thing or something that you should do anyway, but there seem to be quite a few people looking for a job who don't do this.

See 20 tips, page 42

SONY

Beyond safe.

Preserving your data with safe, reliable media is critical. But at Sony, bringing engineering excellence to your storage network is just the beginning. Sony LTO™ tapes also offer factory bar coding for easy data management. Convenient Library Packs eliminate individual shrink-wrapping. Beyond all this, our Storage Rewards℠ loyalty program puts you on the Sony incentives fast track. Sony LTO media. Safe, reliable, and so much more.

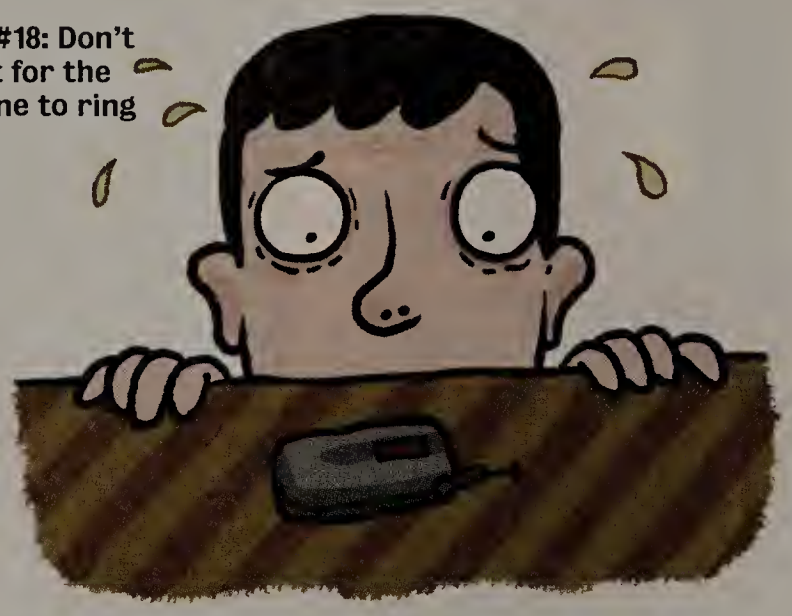
sony.com/storagerewards and enter code SRL301 for an additional 500 Storage Rewards Points.*

* [illegible] offer [illegible], com/storagerewards for details

20 tips

continued from page 40

In addition, have several copies of your résumé with you at an interview. This becomes even more important once you see your résumé as the client or recruiter does after they have downloaded it or printed it out from the job-board application: The formatting is pretty much gone. To make matters worse, the résumé's paragraphs or bullet points will look like a series of poorly written, run-on sentences that may cause distinctive or unique information about you to be overlooked.



Tip #18: Don't wait for the phone to ring

14. Deal with recruiters

I encountered a couple of recruiters who would give used-car salesmen a bad name, but as a general rule, I found them pretty decent to work with. Several positions I was approached about were not on the job boards and sometimes were from only a single recruiter. The trick I learned was to identify the same end-job when it came from different recruiters. One situation you want to avoid is having more than one recruiter pitching you to the same client for the same job. Most recruiters usually will tell you early on who the actual end-client is.

15. Accept help from family

Your pride may make it hard for you to accept help, but keep in mind that your unemployment affects them to a degree as well. Depending on their ages, your unemployment may be a new thing to them. There was a time — unfortunately long-gone now — when the company you first worked for was the only company you worked for in your entire career. How much help you accept from family is something you will have to decide. Look at it this way: Whatever help they do give you is that much less you will have to spend for food.

16. Keep good records

This suggestion came from a letter from the unemployment department telling me I would need to provide some basic information. I set up a spreadsheet in OpenOffice with three tabs. At the first tab I kept track of the jobs I had applied for by date, source of the job, how the job was applied for, company name if known, job name, contact name and job number if provided. At the second tab I kept track of the recruiters I talked to; HR folks I had contacted for the jobs to which I had applied directly; and anything else, such as job fairs I attended. This information was helpful when I was audited by the unemployment folks to make sure I was looking for another job. At the third tab I recorded when I filed my unemployment claim each week, when I received the check, and the check number and when it was deposited.

17. Get your personal records in order

When you accept a job offer, one of the things you will have to deal with is the I-9 form that proves you are allowed to work in this country. If you haven't seen the I-9 form lately, get a copy so you can see what documents you will need. If you can't find your Social Security card, now would be an excellent time to order a replacement. This will take several weeks to process. The sooner you receive it, the sooner you will have it ready to produce when you start your new job. Another document you want make sure you have, even if you don't need it for the I-9, is a copy of your birth certificate. This might take a little while to get. I didn't know until recently that, depending on when and/or where you were born, there are two types of birth certificates — one the hospital does and one that's done when the birth is registered with the local authorities. You will want to get a copy of the certificate on file with the local authorities.

18. Don't wait for the phone to ring

This may be one of the harder things to do. Keep in mind that recruiters and HR types move at their own pace, which can be very slow. When you first apply for a job, it could be several days or more before you get the first contact. Waiting for the phone to ring will have you climbing the walls in short order. Sometimes you will get a call within hours of applying for a job, but expect that to be the exception. There are always things you can do while you wait for movement on the job front, and some of them may be done at little to no cost — that little bit of touch-up painting you have never gotten around to, or the trimming around the yard that always needs to be done. You need to stay active — don't just sit around and watch the clock move forward.

19. Get out of the house at least once a day

At some point you will run out of things to do around the house or will simply need to get out. There will be the occasional job fair, but that won't take a large amount of your time. You can knock on the doors of companies that you would like to work at, but with the price of gas hovering around $4 a gallon depending on where you live, that can be an expensive trip to make for an unknown return. Do some things you enjoy, such as going to a museum or sports game. The main thing is to get out to keep from getting cabin fever.

20. Never give up

Don't leave any stone unturned. You just may find that a company that today passed you over in favor of another applicant may come back to you when that person leaves to move onto greener pastures. I never would have thought that could happen, but I have seen it happen twice in the past year.

Tip #20: Never give up

Nutter is an IT executive in Kansas City. He is also one of the editors of Network World's IT Asked & Answered. He can be reached at nww@networkref.com.

How Do You Get Premium 3-Phase Technology at a Lower Cost?

By Choosing Tripp Lite, You Receive Superior Performance and Advanced Features—Typically at a Savings of 10%–25%!

Tripp Lite's new SmartOnline™ Modular 3-Phase UPS Systems provide the highest level of power protection for your enterprise (40-80 kVA). They offer double-conversion on-line operation and zero transfer time to battery to protect your mission-critical equipment from every power problem on the AC line.

But that's not all. Not only are Tripp Lite's SmartOnline™ Modular 3-Phase UPS Systems priced lower than the competition, they also lower your overall costs:

- **Save money on battery replacement.** The industry's widest voltage correction range ensures longer battery service life and reduces battery replacement costs.
- **Reduce electrical bills.** Higher-efficiency Economy or "Green" mode (at 96% AC-AC conversion) switches to on-line operation only when needed.
- **Eliminate network downtime.** N+1 modular architecture allows for fail-safe redundancy because multiple power modules can be hot-swapped (with the load powered) if maintenance or replacement is required. No downtime = no money lost!
- **Reduce installation costs.** Lower (<3%) total harmonic distortion or THDi allows your current generators to run cooler and last longer, which means you don't need to purchase oversized-generators, cables and breakers.
- **Increase capacity.** 1 + 1 parallel capability allows for redundancy by connecting two 3-phase UPS Systems to a single equipment load. If one UPS is removed or taken offline, the second UPS supports the load automatically!

Tripp Lite SmartOnline 3-Phase UPS Systems are ideal for protecting and supporting mission-critical equipment in data centers, call centers, VoIP telecom applications, hospitals, schools, factories and more. For total protection for your enterprise and your budget, choose Tripp Lite.

See Tripp Lite's complete line of 3-Phase UPS solutions for data centers!
tripplite.com/3phaseTech

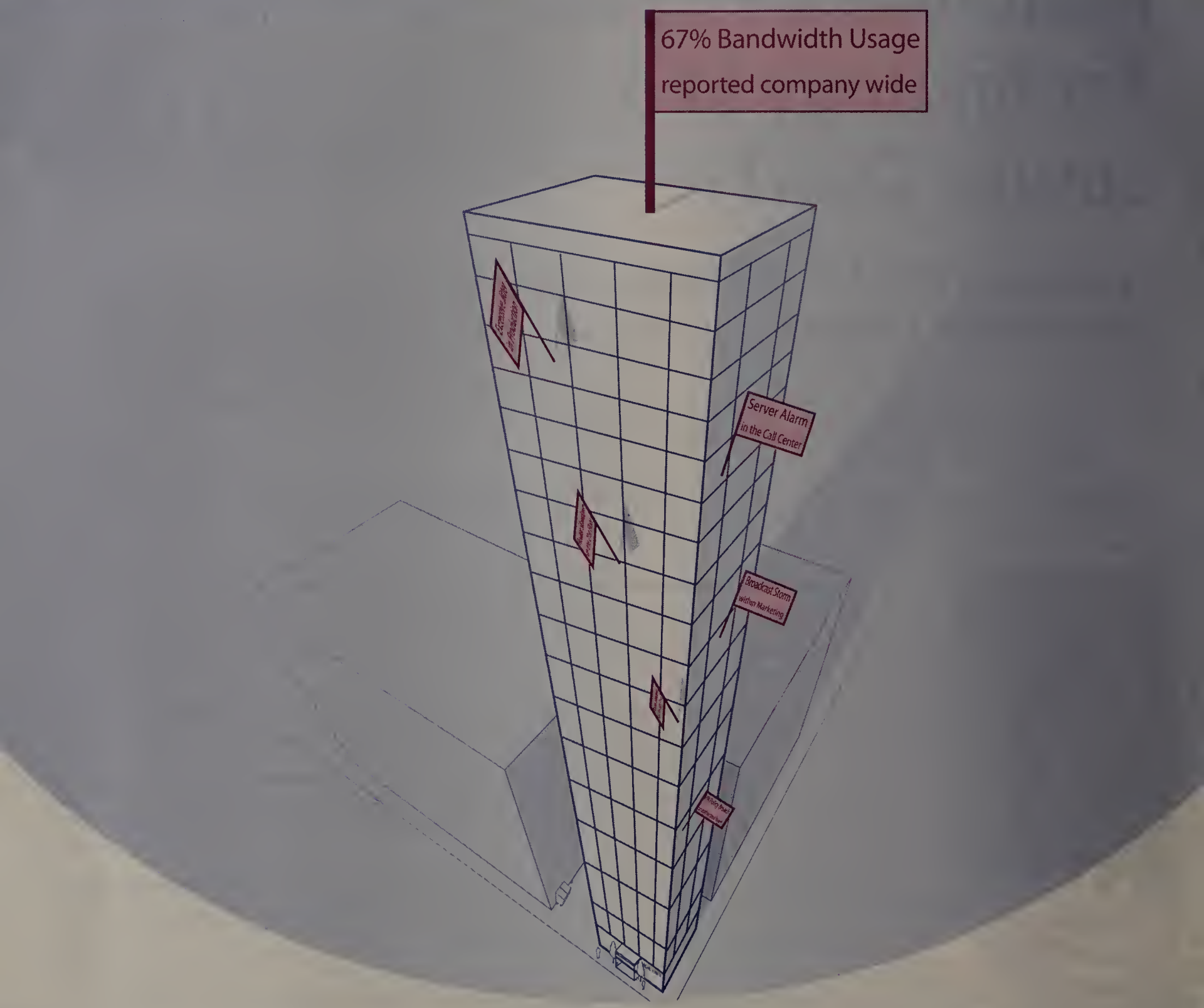
ISO 9001 CERTIFIED QUALITY SYSTEMS

85 YEARS

TRIPP·LITE

Tripp Lite World Headquarters
1111 W. 35th Street, Chicago, IL 60609
773.869.1234 • www.tripplite.com

Top-to-Bottom Reporting



Top-Floor Reports, First-Floor Detail.

Report network wide without sacrificing granularity, with the new Observer Reporting Server. Report by department or function to see how problems impact your business. Plan better with custom reports and trending. Drill into individual links or user data and interface flawlessly with Observer® and GigaStor™ for back-in-time analysis and rapid resolution. Enterprise-wide reporting with drill-down detail: now you can have it both ways.

Don't just report: Resolve.

NETWORK INSTRUMENTS®

For more information, call 800-526-5958

www.NetworkInstruments.com/resolve

Open source
continued from page 17

an intermediary role between companies and open source communities while technically vetting more than 400 applications — urges security experts wishing to contact open source communities to make the effort to find the "right person to talk to" to share concerns about possible vulnerabilities.

Sometimes businesses using open source internally provide a patch, though they may not want their name associated with it. But patch information is generally going to be sent out on a mailing list, Peters says, adding, "Everyone is going to know soon anyway."

Some security vendors have found it can be more difficult to get the message to open source communities than to closed-source vendors.

Fortify Software is a security firm that recently worked with consultant Larry Suto to evaluate 11 Java-based open source applications for vulnerabilities, and found that all had significant flaws that Fortify wanted to report to each open source community.

According to Fortify, however, only Tomcat, which develops an application server, could be found to use the security "best practices" Fortify advocates, which include a dedicated e-mail alias to report security vulnerabilities, easy access to security experts and a prominent Web link to security information.

The remaining open source projects Fortify sought to contact — OpenCMS, Resin, Jonas, Derby, Geronimo, Struts, Ofbiz, JBoss and Hibernate — fell short of supporting all three, and some never responded to Fortify's inquiries.

While Fortify's report about its difficulty in contacting open source projects to report vulnerabilities generated controversy, some open source proponents think the Fortify study makes a valid point.

"We've put up an e-mail address to notify without broadly broadcasting," says Emma McGrattan, senior vice president of engineering at Ingres, about its own discreet process for security remediation in the Ingres open source database. "It's a very inexpensive thing to do."

Ingres, which earns its bread and butter through services and licensing its intellectual property, has two full-time security experts on staff and uses the Klocwork code-testing tool to identify security bugs in vetted Ingres code. "Once someone has that fix, it's incumbent upon them to submit it into the community," she notes, adding, "the community version is less stable."

> "Expecting there to be security services or a contact for a particular project is not likely to happen in open source, but usually there is a mailing list."
>
> **Stormy Peters**
> Executive director, the GNOME Foundation

Danny Allen, director of security research at IBM Rational, who notes IBM has strong initiatives in open source, such as Apache, says businesses do mull the security and intellectual-property implications that spring up from open source.

"There's an awareness of risk, such as what if there's a vulnerability down the road," Allen says. There are worries about who is the security contact for the framework, or what's the possibility of the intentional inclusion of malicious code.

Corporate lawyers in particular are leery of open source projects because it may be difficult, if not impossible, to find the people who are accountable. "In open source projects, there isn't any specific accountability," Allen says, adding that he's seen legal people try to ferret out the open source software during a merger, regarding it as higher risk than closed-source software.

Each open source community will look and act a bit different, notes David Maxwell, open source strategist at Coverity, which makes Coverity Prevent, a static-analysis tool that measures software quality. Maxwell also is a software developer voluntarily working on the NetBSD open source project, in which a few hundred individuals have the right to "commits" of code changes.

More than two years ago, Coverity was awarded a contract from the Department of Homeland Security to methodically analyze open source software under the government's Open Source Hardening Project.

Under the contract, open source projects were invited to use the Coverity Scan site for free, with the goal of evaluating software so any defects could be fixed.

The Coverity Scan site analyzed more than 55 million lines of code on a recurring basis over two years for more than 250 open source projects, including Firefox, Linux and PHP. The results were summarized in May in its "Open Source Report."

Of the 250 projects, about 120 have developers active in reducing reported defects in the code, the report says. Using the tool led to the reduction of more than 8,500 various defects in open source programs over two years. But by and large, open source software didn't stack up particularly well in terms of clean code.

The projects that did very well include Amanda; NTP; OpenPAM; OpenVPN; Overdose; Perl; PHP; Postfix; Python; Samba and TCL, which resolved all the defects found, Maxwell says. "But the rest of the 120 had varying levels of responsiveness," he says, about the process of fixing code. He acknowledges that his own NetBSD, which follows the practice of selecting security officers from its volunteers and encrypting communications, is still catching up with the bug findings.

Open source software development is a culture where people are accepted based on the group's perception of their abilities and dedication, creating a naturally formed tight-knit volunteer group, Maxwell points out. So, there can be stiff resistance to an outsider suddenly appearing with bad news about software security.

Attackers are out there trying to exploit the openness in open source, say some. Many open source projects use the Concurrent Versions System (CVS) as the repository for the project code. Even this predictability offers opportunities to attackers that might want to monitor for code changes and updates to prepare malware and attack code. "People do take advantage of that all the time," says Alfred Huger, vice president of Symantec Security Response. "They look at CVS and the logs that are changing."

As to whether he's found open source communities to be more leery of outsiders approaching with security intelligence, Huger says each community is different, but the more reticent and skeptical ones are those that were never approached before about a particular problem. ■

■ **Network World**, 492 Old Connecticut Path, Framingham, MA 01701-9002, (508) 766-5301.

Periodical postage paid at Framingham, Mass., and additional mailing offices. Posted under Canadian International Publication agreement #PM40063731. Network World (ISSN 0887-7661) is published weekly, except for combined issues for the first two weeks of July and the last two weeks in December by Network World, Inc., 492 Old Connecticut Path, Framingham, MA 01701-9002.

Network World is distributed free of charge in the U.S. to qualified management or professionals.

To apply for a free subscription, go to www.subscribenw.com or write Network World at the address below. No subscriptions accepted without complete identification of subscriber's name, job function, company or organization. Based on the information supplied, the publisher reserves the right to reject non-qualified requests. Subscriptions: 1-508-820-8117.

Nonqualified subscribers: $5.00 a copy; U.S. - $129 a year; Canada - $160.50 (including 7% GST, GST#126659952); Central & South America - $150 a year (surface mail); all other countries - $300 a year (airmail service). Four weeks notice is required for change of address. Allow six weeks for new subscription service to begin. Please include mailing label from front cover of the publication.

Network World can be purchased on 35mm microfilm through University Microfilm Int., Periodical Entry Dept., 300 Zebb Road, Ann Arbor, Mich. 48106.

POSTMASTER: Send Change of Address to **Network World**, P.O. Box 3090, Northbrook, IL 60065. Canadian Postmaster: Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A7C9.

USPS735-730

STUFF HAPPENS.

No matter where you are or what you're doing, something or someone can compromise your DNS. Be the first to know about your domain or email problem, especially when your business depends on it.

Alert services that work for you 24/7/365

DNSalerts *(domain monitoring)*

RBLalerts *(email blacklist monitoring)*

■ *Put our alerts to the test -* **FREE!**
Select: Promo Pack | Alert Combo 2 month
Coupon code: **NWWALERT**

DNSstuff.com
CLICK. CHECK. RESOLVE.

NETWORKWORLD

Editorial Index

Advertiser Index

These indexes are provided as a reader service. Although every effort has been made to make them as complete as possible, the publisher does not assume liability for errors or omissions.

*Indicates Regional Demographic

International Data Group
Chairman of the Board, Patrick J. McGovern

IDG Communications, Inc.
CEO, Bob Carrigan

Network World is a publication of IDG, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. IDG publishes over 300 computer publications in 85 countries. One hundred million people read one or more IDG publications each month. *Network World* contributes to the IDG News Service, offering the latest on domestic and international computer news.

Network World, Inc.

492 Old Connecticut Path, Framingham, MA 01701-9002
Phone: (508) 766-5301

TO SEND E-MAIL TO NWW STAFF
firstname_lastname@nww.com

CEO: John Gallant
Publisher: Dan Hirsh

ONLINE SERVICES
Vice President/General Manager: Susan Cardoza
V. P., Audience/Partnership Development: Dan Gallagher
Director of Client Services: Jennifer Moberg

SEMINARS, EVENTS AND IDG EXECUTIVE FORUMS
Exec. V. P., Events/Executive Forums: Neal Silverman
Vice President, Event Sales: Andrea D'Amato
V. P., Event Marketing/Business Dev.: Mike Garity
Director of Event Operations: Dale Fisher

MARKETING
Director of Marketing: Donna Pomponi

AD OPERATIONS
Senior Production Manager: Jami Thompson
Advertising Coordinator: Maro Eremyan

FINANCE
Vice President Finance: Mary Fanning

HUMAN RESOURCES
Director of Human Resources: Eric Cormier

CIRCULATION/SUBSCRIPTION
Membership Services Specialist: Judy Cloutier
Direct: (508) 820-8117

INFORMATION SERVICES
CIO: W. Michael Draper
Director of Systems Development: Tom Kroon

IDG LIST RENTAL SERVICES
Director of List Management, Steve Tozeski
Toll free: (800) IDG-LIST (US only)/Direct: (508) 370-0822

Sales

Vice President/Associate Publisher: Sandra Kupiec

New York/New Jersey
Elisa Della Rocco, Regional Account Director
(201) 634-2300/FAX: (201) 634-9286

Northeast
Elisa Della Rocco, Regional Account Director
(201) 634-2300/FAX: (201) 634-9286

Mid-Atlantic
Jacqui DiBianca, Regional Account Director
(610) 971-0808/FAX: (201) 621-5095

Midwest/Central
Sandra Kupiec, Vice President/Associate Publisher
(415) 243-4122/FAX: (415) 267-4519

Southeast
Al Schmidt, Regional Account Director
(972) 631-3730/FAX: (972) 631-3993
Enku Gubaie, Account Manager
(508) 460-3333/FAX: (508) 460-1192

Northern California/Northwest
Karen Wilde, Regional Account Director
Vanessa Tormey, Regional Account Director
Coretta Wright, Regional Account Manager
Katie Layng, District Manager
Hillary Bullard, Account Executive
(415) 243-4122/FAX: (415) 267-4519

Southwest/Rockies
Katie Layng, District Manager
(415) 243-4122/FAX: (415) 267-4519

Online/Integrated Solutions
Debbie Lovell, Regional Account Director Northeast
Daniel Hunt, Account Executive
(508) 766-5301/FAX: (508) 766-5320

EVENT SALES
Kevin Hause, Sr. Director, Global Sales, DEMO
Michael McGoldrick, Regional Account Director
Grace Moy, Regional Account Director
Jennifer Sand, Regional Account Director
Leilani Hammock, Sales Representative
(508) 766-5301/FAX: (508) 766-5327

BACKSPIN

Mark Gibbs

Proof that IT is crazy

The IT world has a certain level of craziness that is remarkable, and nowhere does it show up more than in how various companies market their products. I have all sorts of examples to illustrate this, but given that I have limited space I'm going to concentrate on what I consider to be the 800-pound gorilla of marketing crazy: Microsoft.

A couple of days ago it was announced that Microsoft had retained the services of comedian Jerry Seinfeld for the princely, no, kingly sum of $10 million. For this insane amount of cash Seinfeld will appear in a $300 million series of commercials rumored to revolve around the slogan "Windows, Not Walls."

According to various sources the whole "Windows, Not Walls" gambit is about the need to (and I definitely quote) "break down barriers that prevent people and ideas from connecting" (I feel bilious just typing that). Just the idea that anyone could think of pitching Windows as being such a powerful facilitator of communications defies belief.

The impetus for this planned bout of rabid, unashamed, spin doctoring has been the dismal market perception and performance of Microsoft's Vista operating system.

Apparently Seinfeld will appear in some of the ads with that great stand-up comedian Bill Gates. As many commentators have pointed out, there's a serious level of craziness involved in hiring a comedian who peaked in the '90s as the pitchman because the real opinion makers (that's you, dear readers) aren't going to be swayed by a few laughs into changing their opinions.

To recycle an old joke, trying to repair the market's perception of Vista by being funny is like rearranging the deck chairs on the Titanic — as it sinks. (No, don't write in to tell me that you're happy with Vista. You just think you are. You have swallowed Redmond's blue pill.)

Anyway, it also doesn't take a genius to guess that the campaign will also tout the results of Microsoft's recent and pompously named "Mojave Experiment." In case you missed this also crazy (and lame) marketing exercise, it involved the punking of 120 noobs in San Francisco by giving them a 10-minute demo of what they were told was a forthcoming Microsoft operating system called Mojave. Of course the operating system was actually Vista and the results as measured and interpreted by Microsoft gave Mojave an approval rating of nearly double that of Vista. Wow. I'm convinced, aren't you?

Wait a minute — convinced of what? That we've all just got it wrong and our perception of Vista is based on unfair prejudice? That a noob's response to a slick 10-minute demo is a fair way to evaluate public perception of something as complex as an operating system? No, I don't know about you but I'm convinced that Microsoft thinks we're all so gullible that we'd be taken in by their blatant spin doctoring. The company is truly crazy.

Now before I go any further I just have to make it clear that I don't hate Microsoft. In fact, I use and love (and hate) many of their products every day. My problem with Microsoft stems from what I see as the company's repeated failure over the last 30 years to behave honorably, fairly and, most importantly, with the care for building excellent software that one would hope for.

But as I've commented before, Microsoft isn't solely to blame for what it has become. Nope, the truth is that we created the monster. We wanted the Kool-Aid Microsoft was selling as cheap as possible and we failed to be as critical and demanding as we should have been when we found problems.

Then again, I guess that just goes to show that we really are crazy.

Gibbs keeps as tight a hold on his sanity as he can in Ventura, Calif. Put on your foil hat and tell him at backspin@gibbs.com.

Michael Cooney

Layer 8

FTC bans prerecorded telemarketing drivel

In the ongoing battle to let us eat dinner in peace without being interrupted by amazingly annoying telemarketer blather and in this case the even more infuriating recorded telemarketing drivel, the Federal Trade Commission basically outlawed such calls recently.

Specifically, the FTC changed its venerable Telemarketing Sales Rule (TSR) to prohibit, as of September 2009, telemarketing calls that deliver prerecorded messages, unless a consumer has agreed to accept such calls from a given caller/seller.

Between now and 2009, telemarketers must provide an obvious, easy and quick way for consumers to opt-out of any call, the FTC said. Such an opt-out mechanism needs to be in place by Dec. 1, 2008.

The change will not affect your ability to continue to receive calls that deliver informational prerecorded messages - notifying you, for example, that your flight has been cancelled, or that you have a service appointment. Such purely "informational" calls are not covered by the TSR because they do not attempt to sell the called party any goods or services, the FTC said.

However, for those who have called on the FTC to help eliminate the other phone scourge — political robocalls — the new rule will not help. Calls from political campaigns are considered protected speech, an FTC representative said.

Ultimately consumers may get some help from state legislatures, as many are regulating or looking to pass laws for more control over automated or robocall computer-generated phone-calling campaigns. One group, the National Political Do Not Contact Registry, is campaigning to outlaw political robocalling altogether.

Meanwhile, the FTC also adopted a regulation changing the way telemarketers use the phone. No doubt if you have received an unsolicited telemarketing call, there is a delay in the time when you pick up and say "hello" and the response on the other end. Sometimes no one answers at all.

This situation is called "call abandonment" by the FTC and it has tweaked its enforcement of such delay or nonresponses. The TSR requires that at least 97% of a telemarketer's calls be answered in person and get connected to a salesperson within two seconds after a consumer answers.

Call abandonment is a side effect of very efficient telemarketing equipment called predictive dialers. These place calls in anticipation that a salesperson will become available by the time one of the numbers called is answered, the FTC said.

Here, though, the FTC is making a more subtle change that many don't think goes far enough. While retaining the 97% requirement, it will now calculate call abandonment over a 30-day period, rather than on a daily basis, which has been the case. The change will permit the use of smaller calling lists than before without an appreciable increase in call abandonments, the FTC claims. It will let all sellers target their calling campaigns to consumers most likely to be interested in their offer, and will benefit small businesses that have smaller customer lists in particular, the FTC said. The modified method for measuring the maximum allowable rate of call abandonment will become effective on Oct. 1, 2008.

The new rules come in part from more than 14,000 comments the agency received on the subjects since it last changed or proposed changes to the rules in 2006.

Cooney is the author of the Layer 8 blog and an Online News Editor.

Evolve your telephony with software and leave the PBX in place.

Transition to VoIP with innovative software from Microsoft. Software that integrates with Windows Server® Active Directory® services, Microsoft® Office, and Microsoft Exchange Server. Keep your existing PBX hardware and still get new voice capabilities like drag-and-drop conferencing, anywhere access, and click-to-call functionality from familiar desktop applications. A software-powered VoIP solution, based on Microsoft Office Communications Server 2007, helps you increase the productivity and flexibility of your workforce—especially your mobile users. Change the way you communicate without switching your switch. Learn more at microsoft.com/voip

Your potential. Our passion.®

Microsoft


ALL MFPs SORT PAGES.
THIS ONE SORTS YOUR OFFICE.
The HP Color LaserJet CM6040 MFP can help you take control of printing and copying. With tools like Web Jetadmin, IT can be more productive. It also limits help desk calls with automatic toner and maintenance alerts. It's part of a new breed of workflow-enhancing MFPs from HP. That's alternative thinking about printing.
hp.com/go/6040
WHAT DO YOU HAVE TO SAY?
hp
©2008 Hewlett-Packard Development Company, L.P. Simulated images.